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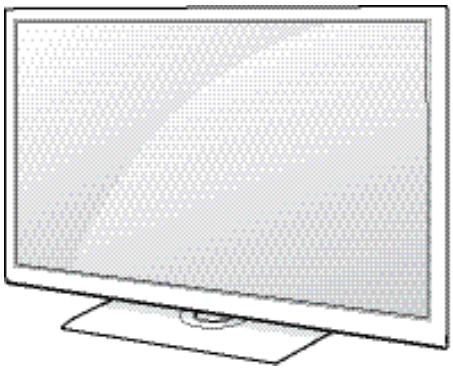
LED LCD TV
SERVICE MANUAL

CHASSIS : LA21B

MODEL : 47LM4600 47LM4600-UC

CAUTION
BEFORE SERVICING THE CHASSIS,
READ THE SAFETY PRECAUTIONS IN THIS MANUAL.



P/NO : MFL67402806 (1206-REV00)

Printed in Korea

CONTENTS

SAFETY PRECAUTIONS

IMPORTANT SAFETY NOTICE

Many electrical and mechanical parts in this chassis have special safety-related characteristics. These parts are identified by ⚠ in the Schematic Diagram and Exploded View.
It is essential that these special safety parts should be replaced with the same components as recommended in this manual to prevent Shock, Fire, or other Hazards.
Do not modify the original design without permission of manufacturer.

General Guidance

An **isolation Transformer should always be used** during the servicing of a receiver whose chassis is not isolated from the AC power line. Use a transformer of adequate power rating as this protects the technician from accidents resulting in personal injury from electrical shocks.

It will also protect the receiver and it's components from being damaged by accidental shorts of the circuitry that may be inadvertently introduced during the service operation.

If any fuse (or Fusible Resistor) in this TV receiver is blown, replace it with the specified.

When replacing a high wattage resistor (Oxide Metal Film Resistor, over 1 W), keep the resistor 10 mm away from PCB.

Keep wires away from high voltage or high temperature parts.

Before returning the receiver to the customer,

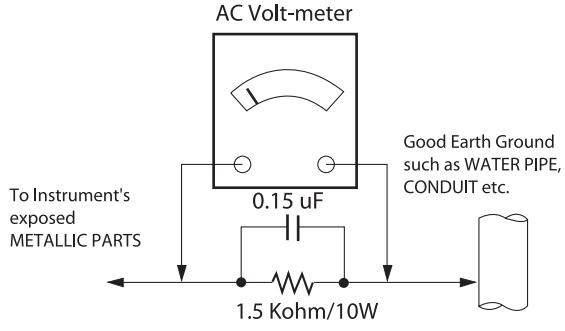
always perform an **AC leakage current check** on the exposed metallic parts of the cabinet, such as antennas, terminals, etc., to be sure the set is safe to operate without damage of electrical shock.

Leakage Current Cold Check(Antenna Cold Check)
With the instrument AC plug removed from AC source, connect an electrical jumper across the two AC plug prongs. Place the AC switch in the on position, connect one lead of ohm-meter to the AC plug prongs tied together and touch other ohm-meter lead in turn to each exposed metallic parts such as antenna terminals, phone jacks, etc.
If the exposed metallic part has a return path to the chassis, the measured resistance should be between 1 MΩ and 5.2 MΩ.
When the exposed metal has no return path to the chassis the reading must be infinite.
An other abnormality exists that must be corrected before the receiver is returned to the customer.

Leakage Current Hot Check (See below Figure)
Plug the AC cord directly into the AC outlet.

Do not use a line Isolation Transformer during this check.
Connect 1.5 K / 10 watt resistor in parallel with a 0.15 uF capacitor between a known good earth ground (Water Pipe, Conduit, etc.) and the exposed metallic parts.
Measure the AC voltage across the resistor using AC voltmeter with 1000 ohms/volt or more sensitivity.
Reverse plug the AC cord into the AC outlet and repeat AC voltage measurements for each exposed metallic part. Any voltage measured must not exceed 0.75 volt RMS which is corresponds to 0.5 mA.
In case any measurement is out of the limits specified, there is possibility of shock hazard and the set must be checked and repaired before it is returned to the customer.

Leakage Current Hot Check circuit



When 25A is impressed between Earth and 2nd Ground for 1 second, Resistance must be less than 0.1 Ω
*Base on Adjustment standard

SPECIFICATION

NOTE : Specifications and others are subject to change without notice for improvement.

1. Application range

This spec sheet is applied LCD TV with LA21B/C chassis

2. Test condition

Each part is tested as below without special notice.

1) Temperature : 25 ºC ± 5 ºC (77 ºF ± 9 ºF), CST : 40 ºC±5 ºC
2) Relative Humidity: 65 % ± 10 %
3) Power Voltage
   : Standard input voltage (AC 110-240 V~, 50/60 Hz)
   * Standard Voltage of each products is marked by models.
4) Specification and performance of each parts are followed each drawing and specification by part number in accordance with BOM.
5) The receiver must be operated for about 5 minutes prior to the adjustment.

3. Test method

1) Performance: LGE TV test method followed
2) Demanded other specification
   - Safety : UL, CSA, IEC specification
   - EMC: FCC, ICES, IEC specification

4. General Specification

No	Item		Specification		Remark
1	Receiving System		1) ATSC / NTSC-M		
2	Available Channel		1) VHF : 02~13		
			2) UHF : 14~69		
			3) DTV : 02-69		
			4) CATV : 01~135		
			5) CADTV : 01~135		
3	Input Voltage		1) AC 100 ~ 240V 50/60Hz		Mark : 110V, 60Hz (N.America)
4	Market		NORTH AMERICA		
5	Screen Size		47/55 inch Wide (1920 × 1080)	FHD + 60Hz	
6	Aspect Ratio		16:9		
7	Tuning System		FS		
8	Module	Edge LED	LC550EUE-SEF1 (T120 FHD FPR 3D)	LGD	47LM4600-UC
			LC470EUE-SEF1 (T120 FHD FPR 3D)	LGD	55LM4600-UC
.9	Operating Environment		1) Temp : 0 ~ 40 deg 2) Humidity : ~ 80 %		
10	Storage Environment		1) Temp : -20 ~ 60 deg 2) Humidity : ~ 85 %		

5. Component Video Input (Y, CB/PB, CR/PR)

No	Resolution	H-freq(kHz)	V-freq.(Hz)	Pixel clock(MHz)	Proposed
1	720*480	15.73	60.00	13.5135	SDTV ,DVD 480I
2	720*480	15.73	59.94	13.50	SDTV ,DVD 480I
3	720*480	31.50	60.00	27.027	SDTV 480P
4	720*480	31.47	59.94	27.00	SDTV 480P
5	1280*720	45.00	60.00	74.25	HDTV 720P
6	1280*720	44.96	59.94	74.176	HDTV 720P
7	1920*1080	33.75	60.00	74.25	HDTV 1080I
8	1920*1080	33.72	59.94	74.176	HDTV 1080I
9	1920*1080	67.50	60.00	148.50	HDTV 1080P
10	1920*1080	67.432	59.94	148.352	HDTV 1080P
11	1920*1080	27.00	24.00	74.25	HDTV 1080P
12	1920*1080	26.97	23.94	74.176	HDTV 1080P
13	1920*1080	33.75	30.00	74.25	HDTV 1080P
14	1920*1080	33.71	29.97	74.176	HDTV 1080P

6. RGB (PC)

No	Resolution	H-freq(kHz)	V-freq.(Hz)	Pixel clock(MHz)	Proposed	DDC	Remark
1	640*350	31.468	70.09	25.17	EGA	X	
2	720*400	31.469	70.08	28.32	DOS	O	
3	640*480	31.469	59.94	25.17	VESA(VGA)	O	
4	800*600	37.879	60.31	40.00	VESA(SVGA)	O	
5	1024*768	48.363	60.00	65.00	VESA(XGA)	O	
6	1152*864	54.348	60.053		VESA	O	
7	1360*768	47.712	60.015	85.50	VESA (WXGA)	O	
8	1920*1080	66.587	59.934	138.5	WUXGA	O	Full HD model Only

7. HDMI Input

No.	Resolution	H-freq(kHz)	V-freq.(kHz)	Pixel clock(MHz)	Proposed		Remarks
	PC (DVI)				DDC		
1	640*350	31.468	70.09	25.17	EGA	X	
2	720*400	31.469	70.08	28.32	DOS	O	
3	640*480	31.469	59.94	25.17	VESA(VGA)	O	
4	800*600	37.879	60.31	40.00	VESA(SVGA)	O	
5	1024*768	48.363	60.00	65.00	VESA(XGA)	O	
6	1152*864	54.348	60.053		VESA	O	
7	1280*1024	63.981	60.020	108.0	VESA (SXGA)	O	Full HD model Only
8	1360*768	47.712	60.015	85.50	VESA (WXGA)	O	
9	1920*1080	67.50	60.00	148.5	HDTV 1080P	O	Full HD model Only
	DTV						
1	720*480	31.47	60.00	27.027	SDTV 480P		
2	720*480	31.47	59.94	27.00	SDTV 480P		
3	1280*720	45.00	60.00	74.25	HDTV 720P		
4	1280*720	44.96	59.94	74.176	HDTV 720P		
5	1920*1080	33.75	60.00	74.25	HDTV 1080I		
6	1920*1080	33.72	59.94	74.176	HDTV 1080I		
7	1920*1080	67.50	60.00	148.50	HDTV 1080P		
8	1920*1080	67.432	59.94	148.352	HDTV 1080P		
9	1920*1080	27.00	24.00	74.25	HDTV 1080P		
10	1920*1080	26.97	23.976	74.176	HDTV 1080P		
11	1920*1080	33.75	30.00	74.25	HDTV 1080P		
12	1920*1080	33.71	29.97	74.176	HDTV 1080P		

8. 3D Mode (LM5800//LM4600/ CM565 models)

8.1. RF 3D Input(DTV)

No.	Resolution	H-freq(kHz)	V-freq.(Hz)	Pixel clock(MHz)	Proposed	3D input proposed mode
1	1280*720	37.5	50	74.25	HDTV 720P	Side by Side, Top & Bottom
2	1920*1080	28.125	50	74.25	HDTV 1080I	Side by Side, Top & Bottom

8.2. HDMI Input (V1.4a)

- When connect the cable on TV or change the input mode, 3D display on automatically
- Display OSD information -> 1920x2205 [1080p 24], 1280x1470 [720p 60]

No.	Resolution	H-freq(kHz)	V-freq.(kHz)	Pixel clock(MHz)	Proposed	3D input proposed mode
1	1280*720	89.9 / 90	59.94/60	148.35/148.5	HDTV 720P	Frame packing (720 60p)
2	1280*720	45	60	74.25	HDTV 720P	Side by Side(half), Top & Bottom
3	1920*1080	53.95 / 54	23.98 / 24	148.35/148.5	HDTV 1080P	Frame packing (1080 24p)
4	1920*1080	67.5	60	148.5	HDTV 1080P	Side by Side(half), Top & bottom
5	1920*1080	33.7	60	74.25	HDTV 1080i	Side by Side(half), Top & Bottom
6	1920*1080	27	24	74.25	HDTV 1080P	Side by Side(half), Top & Bottom
7	1920*1080	33.7	30	74.25	HDTV 1080P	Side by Side(half), Top &Bottom

8.3. HDMI Input(1.3)

- Connect the HDMI cable & receiving the HDMI signal
- Press “3D” key of remote control & select 3D format below.

No.	Resolution	H-freq(kHz)	V-freq.(Hz)	Pixel clock(MHz)	Proposed	3D input proposed mode
1	1280*720	45.00	60.00	74.25	HDTV 720P	Side by Side, Top & Bottom
2	1920*1080	33.75	60.00	74.25	HDTV 1080I	Side by Side, Top & Bottom
3	1920*1080	27.00	24.00	74.25	HDTV 1080P	Side by Side, Top & Bottom
4	1920*1080	33.75	30.00	74.25	HDTV 1080P	Side by Side, Top & Bottom
5	1920*1080	67.50	60.00	148.5	HDTV 1080P	Side by Side, Top & Bottom, Single Frame Sequential

8.4. USB Input

(1) Movie

No.	Resolution	H-freq(kHz)	V-freq.(Hz)	Pixel clock(MHz)	3D input proposed mode	Proposed
1	1920*1080	33.75	30	74.25	Side by Side	HDTV 1080P
					Top & Bottom	

(2) MPO Picture 3D : when selecting the MPO file, Automatically 3D on

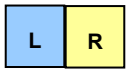
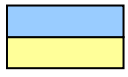
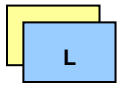
(3) 3D Demo in store mode

No.	Resolution	H-freq(kHz)	V-freq.(Hz)	Pixel clock(MHz)	Proposed	3D input proposed mode
1	1920*1080	33.75	30.00	74.25	HDTV 1080P	Side by Side

8.5. RGB-PC Input

No.	Resolution	H-freq(kHz)	V-freq.(Hz)	Pixel clock(MHz)	Proposed	3D input proposed mode
1	1920*1080	66.587	59.93	138.625	HDTV 1080P	Side by Side, Top & Bottom

8.6. 3D Input mode

No.	Side by Side	Top & Bottom	Single Frame Sequential	Frame Packing		
1						

8.7. DLNA

No.	Resolution	H-freq(kHz)	V-freq.(Hz)	Pixel clock(MHz)	Proposed	Remark
1	1920*1080	33.75	30	74.25	HDTV 1080P	Side by Side, Top & Bottom

ADJUSTMENT INSTRUCTION

1. Application Range

This spec. sheet applies to LA21B/C Chassis applied LCD TV all models manufactured in TV factory.

2. Specification

(1) Because this is not a hot chassis, it is not necessary to use an isolation transformer. However, the use of isolation transformer will help protect test instrument.
(2) Adjustment must be done in the correct order.
(3) The adjustment must be performed in the circumstance of 25 ±5 °C of temperature and 65±10% of relative humidity if there is no specific designation.
(4) The input voltage of the receiver must keep 100~240V, 50/60Hz.
(5) At first Worker must turn on the SET by using Power Only key.
(6) The receiver must be operated for about 5 minutes prior to the adjustment when module is in the circumstance of over 15 °C
In case of keeping module is in the circumstance of 0°C, it should be placed in the circumstance of above 15°C for 2 hours
In case of keeping module is in the circumstance of below -20°C, it should be placed in the circumstance of above 15°C for 3 hours.

[Caution]
When still image is displayed for a period of 20 minutes or longer (especially where W/B scale is strong.
Digital pattern 13ch and/or Cross hatch pattern 09ch), there can some afterimage in the black level area

3. Adjustment items

3.1. Main PCBA Adjustments

(1) ADC adjustment: Component 480i, 1080p / RGB-PC 1080p
(2) EDID download: HDMI and RGB-PC

● Above adjustment items can be also performed in Final Assembly if needed. Both Board-level and Final assembly adjustment items can be check using In-Start Menu (1. Adjust Check). Component 1080p and RGB-PC Adjust will be calculated by 480i adjust value.

3.2. Final assembly adjustment

(1) White Balance adjustment
(2) RS-232C functionality check
(3) Factory Option setting per destination
(4) Shipment mode setting (In-Stop)
(5) GND and HI-POT test

3.3. Appendix

(1) Shipment conditions
(2) Tool option menu
(3) USB Download (S/W Update, Option and Service only)
(4) Preset CH Information

4. MAIN PCBA Adjustments

4.1. ADC Adjustment

4.1.1. Overview

▪ ADC adjustment is needed to find the optimum black level and gain in Analog-to-Digital device and to compensate RGB deviation.

4.1.2. Equipment & Condition

(1) Protocol: RS-232C
(2) Inner Pattern
- Resolution : 1080p(Comp) / 1024*768(RGB)
- Pattern : Horizontal 100% Color Bar Pattern
- Pattern level : 0.7±0.1 Vp-p

4.1.3. Adjustment

4.1.3.1. Adjustment method
- Connect to Jig by using RS-232, adjust Component and RGB

● Manual adj (If needed in Final Assembly)
- Required equipment : Adjustment R/C
- Enter Service Mode by pushing “ADJ” key,
- Enter Internal ADC mode by pushing ‘►’ key at [6. ADC Calibration]

4.1.3.2. Adj. protocol
- Connect to Jig by using RS-232, adjust Component and RGB

Protocol	CMD 1	CMD 2	Data 1	Data 2	Remark
Enter adj mode	a	a	00	00	When transfer the ‘Mode In’,Carry the command.
Start ADC adj	a	d	00	10	Automatically adjustment (Use internal pattern)

4.2. EDID Download

4.2.1. Overview

- It is a VESA regulation. A PC or a MNT will display an optimal resolution through information sharing without any necessity of user input. It is a realization of “Plug and Play”.

4.2.2. Equipment

(1) Since EDID data is embedded, EDID download JIG, HDMI cable and D-sub cable are not need.
(2) Adjust by using remote controller.

4.2.3. Download method

(1) Press Adj. key on the Adj. R/C.
(2) Select EDID D/L menu.
(3) By pressing Enter key, EDID download will begin
(4) If Download is successful, OK is display, but If Download is failure, NG is displayed.
(5) If Download is failure, Re-try downloads.
[Caution] : When EDID Download, must remove RGB/HDMI Cable.

4.2.4. EDID DATA

4.2.4.1. North America (PCM)
(1) FHD Model - 8Bit

■ HDMI 1-FHD-8BIT (C/S : E9CF)
EDID Block 0, Bytes 0-127 [00H-7FH]

	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
0	00	FF	FF	FF	FF	FF	FF	00	1E	6D	01	00	01	01	01	01
10	01	16	01	03	80	A0	5A	78	0A	EE	91	A3	54	4C	99	26
20	0F	50	54	A1	08	00	31	40	45	40	61	40	71	40	81	80
30	01	01	01	01	01	01	02	3A	80	18	71	38	2D	40	58	2C
40	45	00	40	84	63	00	00	1E	66	21	50	B0	51	00	1B	30
50	40	70	36	00	40	84	63	00	00	1E	00	00	00	FD	00	3A
60	3E	1E	53	10	00	0A	20	20	20	20	20	20	00	00	00	FC
70	00	4C	47	20	54	56	0A	20	20	20	20	20	20	20	01	E9

EDID Block 1, Bytes 128-255 [80H-FFH]

	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
0	02	03	19	F1	48	90	22	20	05	04	03	02	01	23	09	57
10	07	67	03	0C	00	10	00	80	1E	02	3A	80	18	71	38	2D
20	40	58	2C	04	05	40	84	63	00	00	1E	01	1D	80	18	71
30	1C	16	20	58	2C	25	00	40	84	63	00	00	9E	01	1D	00
40	72	51	D0	1E	20	6E	28	55	00	40	84	63	00	00	1E	8C
50	0A	D0	8A	20	E0	2D	10	10	3E	96	00	40	84	63	00	00
60	18	26	36	80	A0	70	38	1F	40	30	20	25	00	40	84	63
70	00	00	1A	00	00	00	00	00	00	00	00	00	00	00	00	CF

■ HDMI 2-FHD-8BIT (C/S : E9BF)
EDID Block 0, Bytes 0-127 [00H-7FH]

	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
0	00	FF	FF	FF	FF	FF	FF	00	1E	6D	01	00	01	01	01	01
10	01	16	01	03	80	A0	5A	78	0A	EE	91	A3	54	4C	99	26
20	0F	50	54	A1	08	00	31	40	45	40	61	40	71	40	81	80
30	01	01	01	01	01	01	02	3A	80	18	71	38	2D	40	58	2C
40	45	00	40	84	63	00	00	1E	66	21	50	B0	51	00	1B	30
50	40	70	36	00	40	84	63	00	00	1E	00	00	00	FD	00	3A
60	3E	1E	53	10	00	0A	20	20	20	20	20	20	00	00	00	FC
70	00	4C	47	20	54	56	0A	20	20	20	20	20	20	20	01	E9

EDID Block 1, Bytes 128-255 [80H-FFH]

	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
0	02	03	19	F1	48	90	22	20	05	04	03	02	01	23	09	57
10	07	67	03	0C	00	80	1E	02	3A	80	18	71	38	2D	40	58
20	2C	04	05	40	84	63	00	00	1E	01	1D	80	18	71	1C	16
30	20	58	2C	25	00	40	84	63	00	00	9E	01	1D	00	72	51
40	D0	1E	20	6E	28	55	00	40	84	63	00	00	1E	8C	0A	D0
50	8A	20	E0	2D	10	10	3E	96	00	40	84	63	00	00	18	26
60	36	80	A0	70	38	1F	40	30	20	25	00	40	84	63	00	00
70	1A	00	00	00	00	00	00	00	00	00	00	00	00	00	00	BF

■ HDMI 3-FHD-8BIT (C/S : E9AF)
EDID Block 0, Bytes 0-127 [00H-7FH]

	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
0	00	FF	FF	FF	FF	FF	FF	00	1E	6D	01	00	01	01	01	01
10	01	16	01	03	80	A0	5A	78	0A	EE	91	A3	54	4C	99	26
20	0F	50	54	A1	08	00	31	40	45	40	61	40	71	40	81	80
30	01	01	01	01	01	01	02	3A	80	18	71	38	2D	40	58	2C
40	45	00	40	84	63	00	00	1E	66	21	50	B0	51	00	1B	30
50	40	70	36	00	40	84	63	00	00	1E	00	00	00	FD	00	3A
60	3E	1E	53	10	00	0A	20	20	20	20	20	20	00	00	00	FC
70	00	4C	47	20	54	56	0A	20	20	20	20	20	20	20	01	E9

EDID Block 1, Bytes 128-255 [80H-FFH]

	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
0	02	03	19	F1	48	90	22	20	05	04	03	02	01	23	09	57
10	07	67	03	0C	00	30	00	80	1E	02	3A	80	18	71	38	2D
20	40	58	2C	04	05	40	84	63	00	00	1E	01	1D	80	18	71
30	1C	16	20	58	2C	25	00	40	84	63	00	00	9E	01	1D	00
40	72	51	D0	1E	20	6E	28	55	00	40	84	63	00	00	1E	8C
50	0A	D0	8A	20	E0	2D	10	10	3E	96	00	40	84	63	00	00
60	18	26	36	80	A0	70	38	1F	40	30	20	25	00	40	84	63
70	00	00	1A	00	00	00	00	00	00	00	00	00	00	00	00	AF

■ RGB-FHD (C/S : 02)
EDID Block 0, Bytes 0-127 [00H-7FH]

	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
0	00	FF	FF	FF	FF	FF	FF	00	1E	6D	01	00	01	01	01	01
10	01	16	01	03	68	A0	5A	78	0A	EE	91	A3	54	4C	99	26
20	0F	50	54	A1	08	00	31	40	45	40	61	40	71	40	81	80
30	01	01	01	01	01	01	02	3A	80	18	71	38	2D	40	58	2C
40	45	00	40	84	63	00	00	1E	66	21	50	B0	51	00	1B	30
50	40	70	36	00	40	84	63	00	00	1E	00	00	00	FD	00	3A
60	3E	1E	53	10	00	0A	20	20	20	20	20	20	00	00	00	FC
70	00	4C	47	20	54	56	0A	20	20	20	20	20	20	20	00	02

5. Final Assembly Adjustment

5.1. White Balance Adjustment

5.1.1. Overview

5.1.1.1. W/B adj. Objective & How-it-works

(1) Objective: To reduce each Panel's W/B deviation

(2) How-it-works: When R/G/B gain in the OSD is at 192, it means the panel is at its Full Dynamic Range. In order to prevent saturation of Full Dynamic range and data, one of R/G/B is fixed at 192, and the other two is lowered to find the desired value.

(3) Adj. condition: normal temperature

- Surrounding Temperature: 25±5 ºC
- Warm-up time: About 5 Min
- Surrounding Humidity: 20% ~ 80%
- Before White balance adjustment, Keep power on status, don't power off

5.1.1.2. Adj. condition and cautionary items

(1) Lighting condition in surrounding area surrounding lighting should be lower 10 lux. Try to isolate adj. area into dark surrounding.

(2) Probe location: Color Analyzer (CA-210) probe should be within 10cm and perpendicular of the module surface (80°~ 100°)

(3) Aging time

- After Aging Start, Keep the Power ON status during 5 Minutes.
- In case of LCD, Back-light on should be checked using no signal or Full-white pattern.

5.1.2. Equipment

(1) Color Analyzer: CA-210 (NCG: CH 9 / WCG: CH12 / LED: CH14)

(2) Adj. Computer(During auto adj., RS-232C protocol is needed)

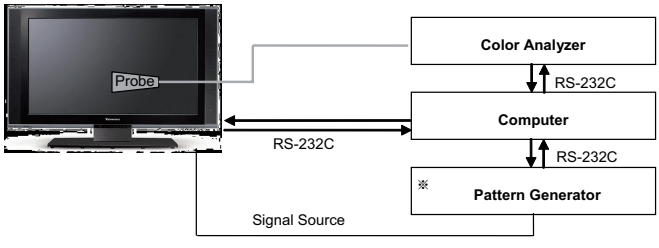
(3) Adjust Remocon

(4) Video Signal Generator MSPG-925F 720p/204-Gray (Model:217, Pattern:49)

→ Only when internal pattern is not available

※ Color Analyzer Matrix should be calibrated using CS-1000

5.1.3. Equipment connection



※If TV internal pattern is used, not needed

5.1.4. Adjustment Command (Protocol)

(1) RS-232C Command used during auto-adj

RS-232C COMMAND			Explanation
CMD	DATA	ID	
Wb	00	00	Begin White Balance adj.
Wb	00	ff	End White Balance adj. (internal pattern disappears)

(2) Adjustment Map

	Adj. item	Command (lower case ASCII)		Data Range (Hex.)	Default (Decimal)
		CMD1	CMD2	MIN	MAX
Cool	R Gain	j	g	00	C0
	G Gain	j	h	00	C0
	B Gain	j	i	00	C0
	R Cut				
	G Cut				
	B Cut				
Medium	R Gain	j	a	00	C0
	G Gain	j	b	00	C0
	B Gain	j	c	00	C0
	R Cut				
	G Cut				
	B Cut				
Warm	R Gain	j	d	00	C0
	G Gain	j	e	00	C0
	B Gain	j	f	00	C0
	R Cut				
	G Cut				

5.1.5. Adjustment method

5.1.5.1. Auto WB calibration

(1) Set TV in ADJ mode using P-ONLY key (or POWER ON key)

(2) Place optical probe on the center of the display

- It need to check probe condition of zero calibration before adjustment.

(3) Connect RS-232C Cable

(4) Select mode in ADJ Program and begin a adjustment.

(5) When WB adjustment is completed with OK message, check adjustment status of pre-set mode (Cool, Medium, Warm)

(6) Remove probe and RS-232C cable.

※ W/B Adj. must begin as start command “wb 00 00” , and finish as end command “wb 00 ff”, and Adj. offset if need.

5.1.5.2. Manual adj. method

(1) Set TV in Adj. mode using POWER ON

(2) Zero Calibrate the probe of Color Analyzer, then place it on the center of LCD module within 10cm of the surface..

(3) Press ADJ key -> EZ adjust using adj. R/C -> 6. White-Balance then press the cursor to the right (KEY►). (When KEY(►) is pressed 204 Gray(80IRE) internal pattern will be displayed)

(4) One of R Gain / G Gain / B Gain should be fixed at 192, and the rest will be lowered to meet the desired value.

(5) Adj. is performed in COOL, MEDIUM, WARM 3 modes of color temperature.

5.1.6. Reference (White Balance Adj. coordinate and color temperature)

▪ Luminance: 204 Gray, 80IRE

** Lamp Module

▪ Standard color coordinate and temperature using CS-1000 (over 26 inch)

Mode	Coordinate		Temp	△uv
	X	Y		
Cool	0.269	0.273	13,000K	0.0000
Medium	0.285	0.293	9,300K	0.0000
Warm	0.313	0.329	6,500K	0.0000

▪ Standard color coordinate and temperature using CA-210(CH 14)

Mode	Coordinate		Temp	△uv
	X	Y		
Cool	0.269±0.002	0.273±0.002	13,000K	0.0000
Medium	0.285±0.002	0.293±0.002	9,300K	0.0000
Warm	0.313±0.002	0.329±0.002	6,500K	0.0000

** Only Edge-LED OS(AUO,CMI,IPS,Sharp) Module except AUO 65”

▪ Standard color coordinate and temperature using CS-1000 (over 26 inch)

Mode	Coordinate		Temp	△uv
	X	Y		
Cool	0.271	0.276	13,000K	0.0000
Medium	0.287	0.296	9,300K	0.0000
Warm	0.315	0.332	6,500K	0.0000

▪ Standard color coordinate and temperature using CA-210(CH 14)

Mode	Coordinate		Temp	△uv
	X	Y		
Cool	0.271±0.002	0.276±0.002	13,000K	0.0000
Medium	0.287±0.002	0.296±0.002	9,300K	0.0000
Warm	0.315±0.002	0.332±0.002	6,500K	0.0000

** Only Edge-LED LGD Module

▪ Standard color coordinate and temperature using CA-210(CH-14) – by aging time

GP3	Aging time (Min)	Cool		Medium		Warm	
		X	Y	X	Y	X	Y
		269	273	285	293	313	329
1	0-2	280	287	296	307	320	337
2	3-5	279	286	295	305	319	335
3	6-9	277	284	292	304	317	334
4	10-19	276	283	292	303	316	333
5	20-35	274	280	290	300	314	330
6	36-49	272	277	288	297	312	327
7	50-79	271	275	287	295	311	325
8	80-149	270	274	286	294	310	324
9	Over 150	269	273	285	293	309	323

5.2. Option selection per country

5.2.1. Overview

(1) Tool option selection is only done for models in Non-USA North America due to rating
(2) Applied model: LA02D and LA02E Chassis applied to CANADA and MEXICO

5.2.2. Country Group selection

(1) Press ADJ key on the Adj. R/C, and then select Country Group Menu
(2) Depending on destination, select KR or US, then on the lower Country option, select US, CA, MX.
Selection is done using +, - KEY

5.2.3. Tool Option inspection

▪ Press Adj. key on the Adj. R/C, then select Tool option.

Model	Module	Tool 1	Tool 2	Tool 3	Tool 4	Tool 5
47LM4600-UC	LGD	32855	2423	10523	29612	7170
55LM4600-UC	LGD	32857	2423	11547	29612	7170
32LS5600-UA	LGD	16725	2423	10523	29612	7202
37LS5600-UC	LGD	16725	2423	9499	29612	7202
47LS5600-UC	AUO	20823	2423	9499	29612	7218
55LS5600-UC	LGD	20825	2423	9499	29612	7170
55LS5600-UC	AUO	20825	2423	9499	29612	7218

6. GND and HI-POT Test

6.1. GND & HI-POT auto-check preparation

(1) Check the POWER CABLE and SIGNAL CABE insertion condition

6.2. GND & HI-POT auto-check

(1) Pallet moves in the station. (POWER CORD / AV CORD is tightly inserted)
(2) Connect the AV JACK Tester.
(3) Controller (GWS103-4) on.
(4) GND Test (Auto)
- If Test is failed, Buzzer operates.
- If Test is passed, execute next process (Hi-pot test). (Remove A/V CORD from A/V JACK BOX)
(5) HI-POT test (Auto)
- If Test is failed, Buzzer operates.
- If Test is passed, GOOD Lamp on and move to next process automatically.

6.3. Checkpoint

(1) Test voltage
- GND: 1.5KV/min at 100mA
- SIGNAL: 3KV/min at 100mA
(2) TEST time: 1 second
(3) TEST POINT
- GND Test = POWER CORD GND and SIGNAL CABLE GND.
- Hi-pot Test = POWER CORD GND and LIVE & NEUTRAL.
(4) LEAKAGE CURRENT: At 0.5mArms

7. AUDIO output check

7.1. Audio input condition

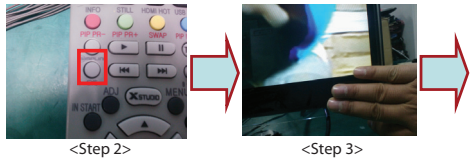
(1) RF input: Mono, 1KHz sine wave signal, 100% Modulation
(2) CVBS, Component: 1KHz sine wave signal (0.4Vrms)
(3) RGB PC: 1KHz sine wave signal (0.7Vrms)

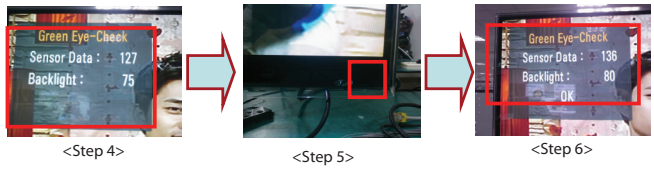
7.2. Specification

No	Item	Min	Typ	Max	Unit	Remark
1	Audio practical max Output, L/R	9.0 8.5	10.0 8.9	12.0 9.9	W Vrms	(1) Measurement condition - EQ/AVL/Clear Voice: Off (2) Speaker (8Ω Impedance)

8. EYE-Q Check

Step 1) Turn on the TV..
Step 2) Press 'EYE button' on the adjustment remote-controller.
Step 3) Cover 'Eye Q sensor' on the front of set with your hands, hold it for 6 seconds.
Step 4) Check "the Sensor Data" on the screen, make certain that Data is below 10. If Data isn't below 10 in 6 seconds, Eye Q sensor would be bad. You should change Eye Q sensor.
Step 5) Uncover your hands from Eye Q sensor, hold it for 6 seconds.
Step 6) Check "Back Light(xxx)" on the screen, check data increase . You should change Eye Q sensor.


<Step 2> <Step 3>

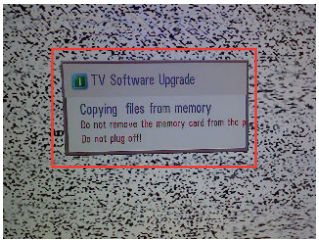


<Step 4> <Step 5> <Step 6>

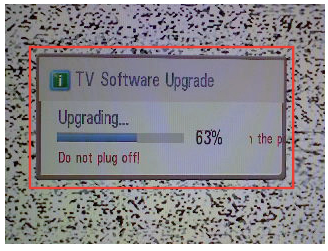
9. USB S/W Download (optional, Service only)

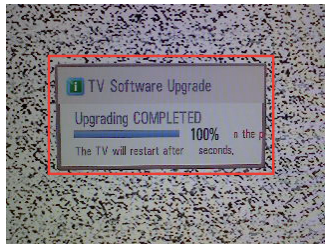
(1) Put the USB Stick to the USB socket
(2) Automatically detecting update file in USB Stick
- If your downloaded program version in USB Stick is lower than that of TV set, it didn't work. Otherwise USB data is automatically detected.

(3) Show the message "Copying files from memory"



(4) Updating is staring.





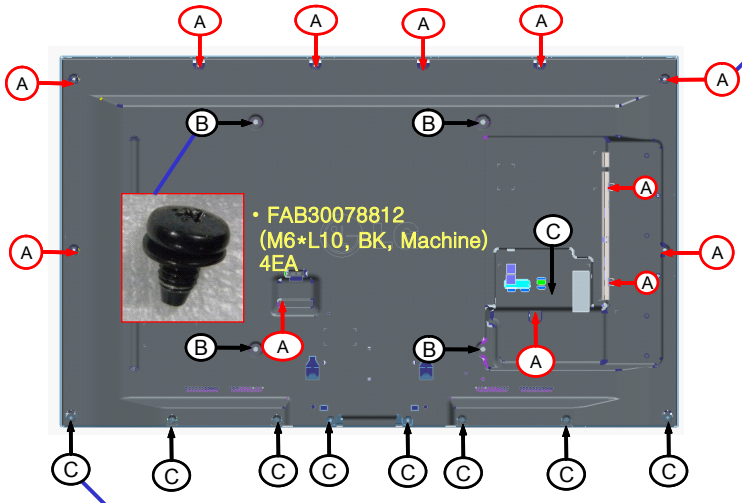
(5) Updating Completed, The TV will restart automatically
(6) If your TV is turned on, check your updated version and Tool option.

* If downloading version is more high than your TV have, TV can lost all channel data. In this case, you have to channel recover. If all channel data is cleared, you didn't have a DTV/ATV test on production line.

* After downloading, TOOL OPTION setting is needed again.
(1) Push "IN-START" key in service remote controller.
(2) Select "Tool Option 1" and Push "OK" button.
(3) Punch in the number. (Each model has their number.)

SCREW ASSEMBLY WORKING GUIDE

■ Screw specification and application situation



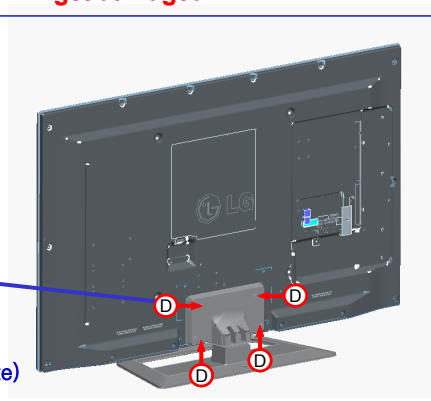
• FAB31339402
(M3*L4.5, BK, Machine)
• 12EA

※ Warning

Check Screw Type When Screw is assembled at Ⓐ Part. If Ⓒ Screw is used at the Ⓐ part Module will get damaged

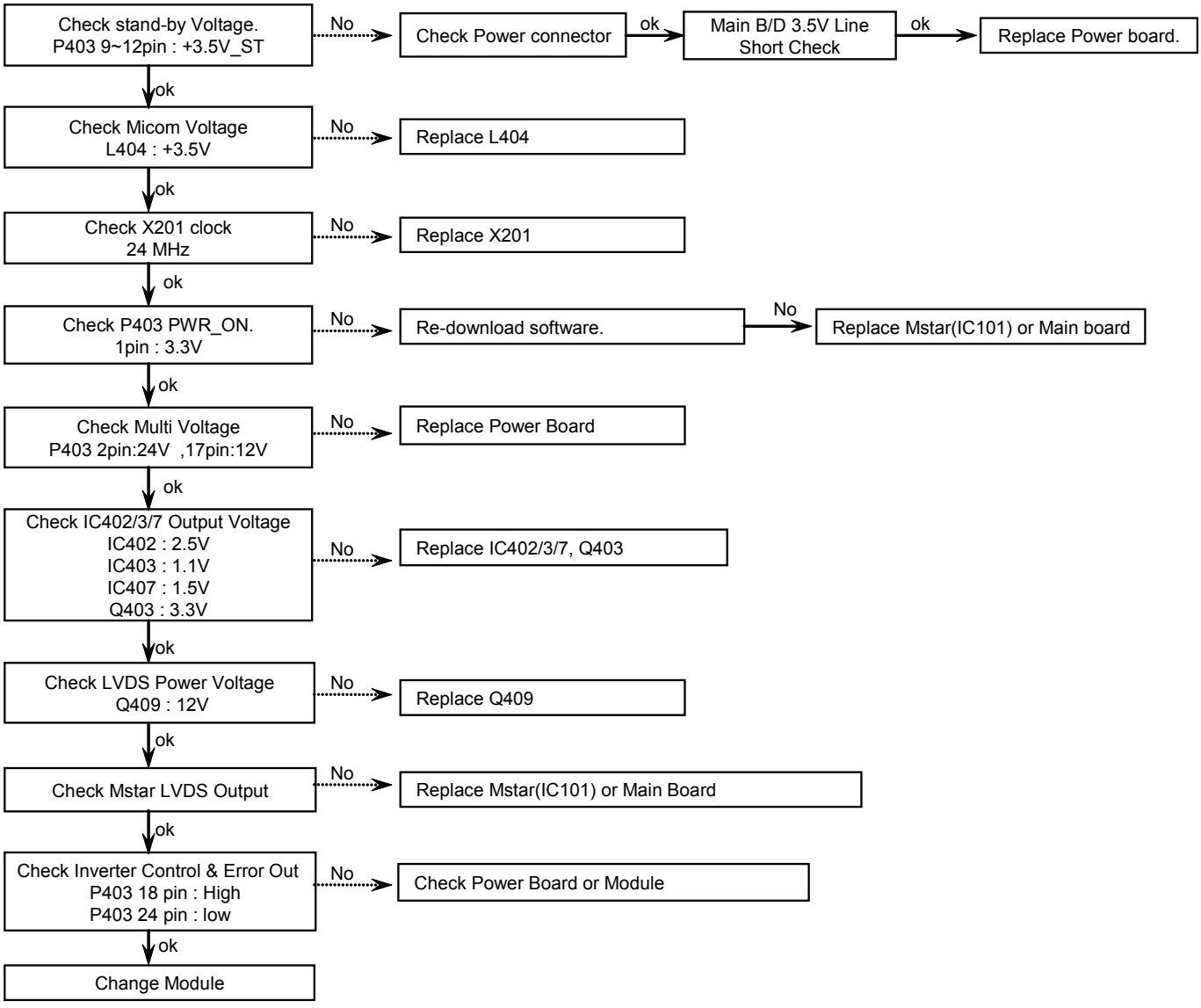
• FAB31339201
(M3*L10, BK, Taptite)
• 9EA

• FAB30016122
(M4*L20, BK, Taptite)
• 4EA

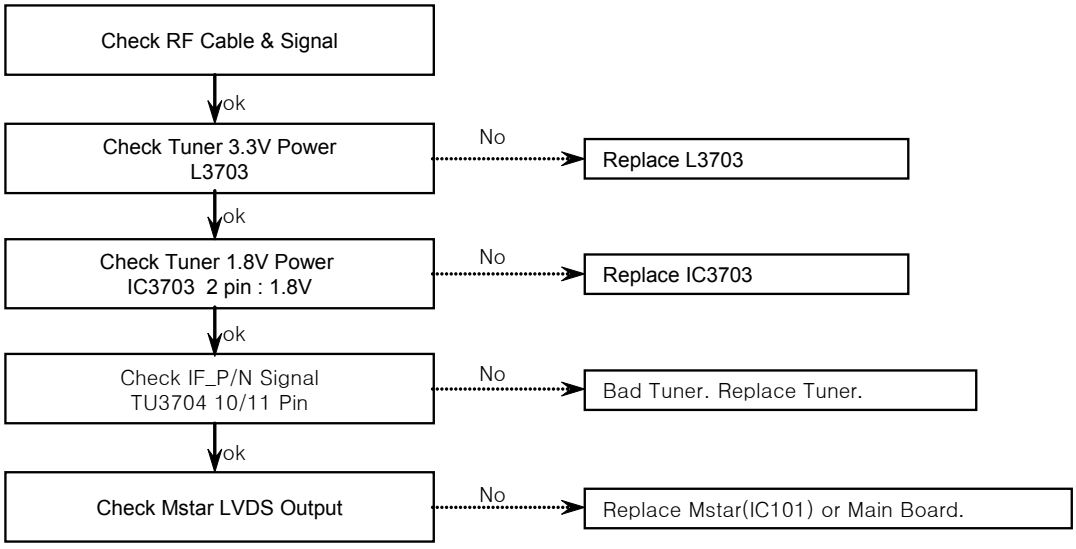


TROUBLE SHOOTING

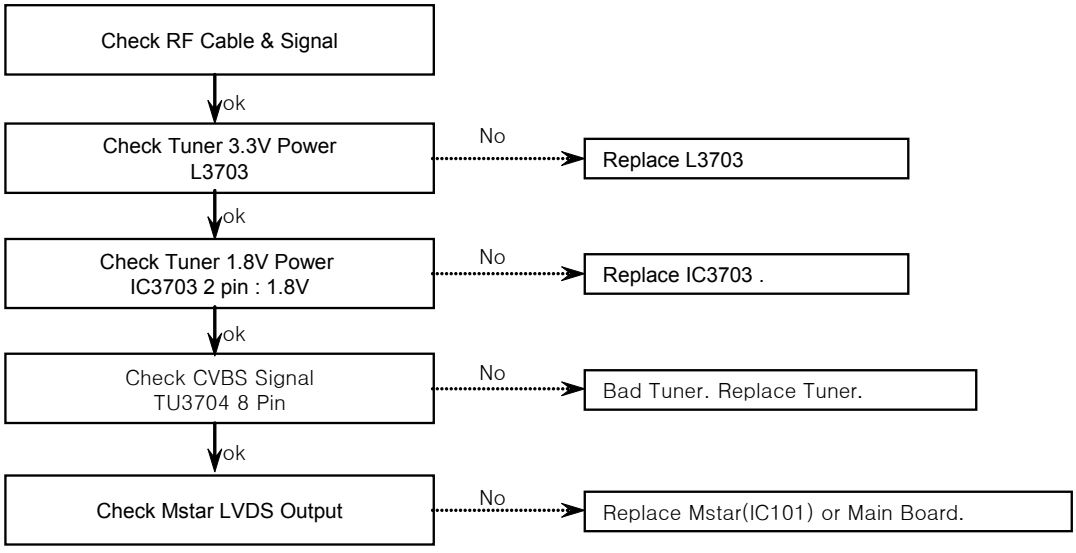
1. Power-up boot check



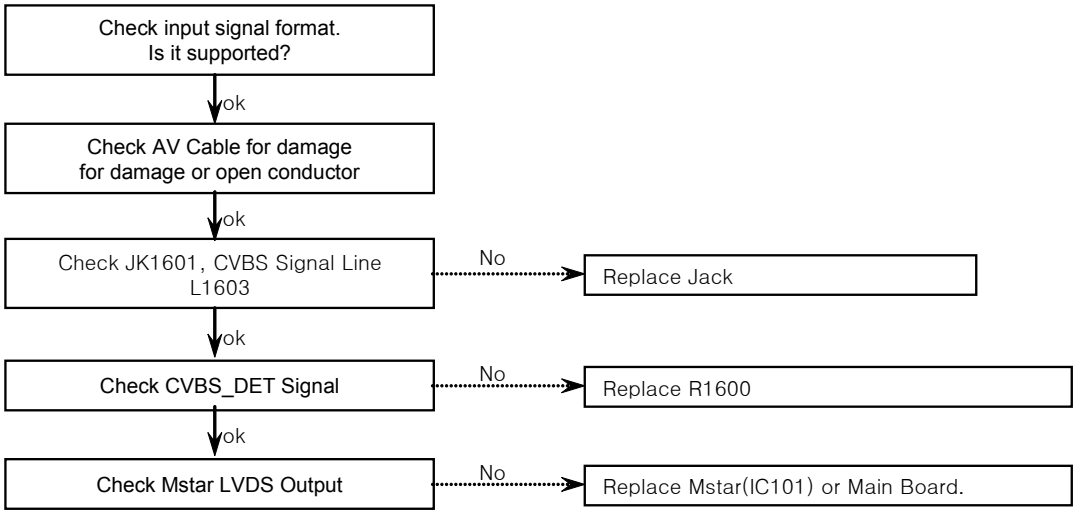
2. Digital TV Video



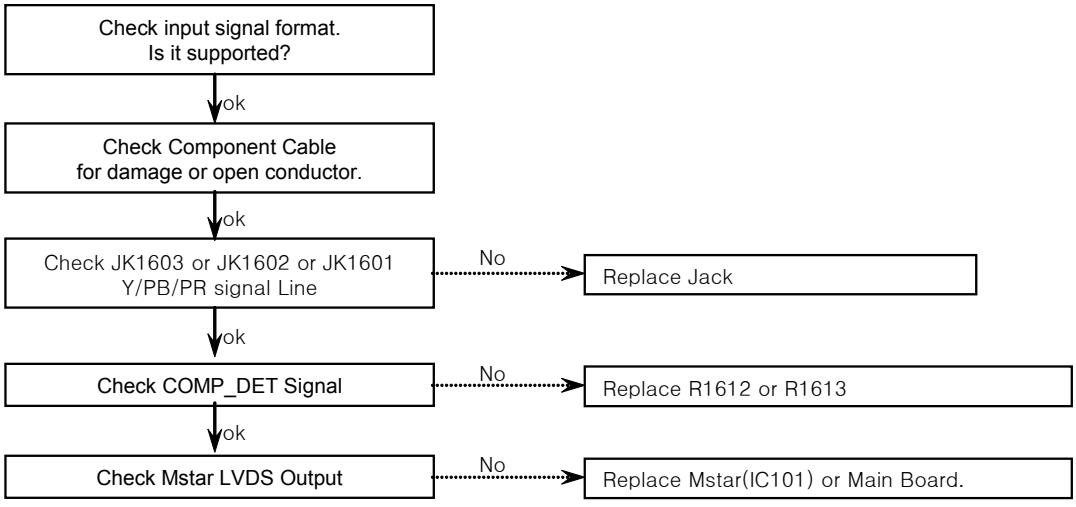
3. Analog TV Video



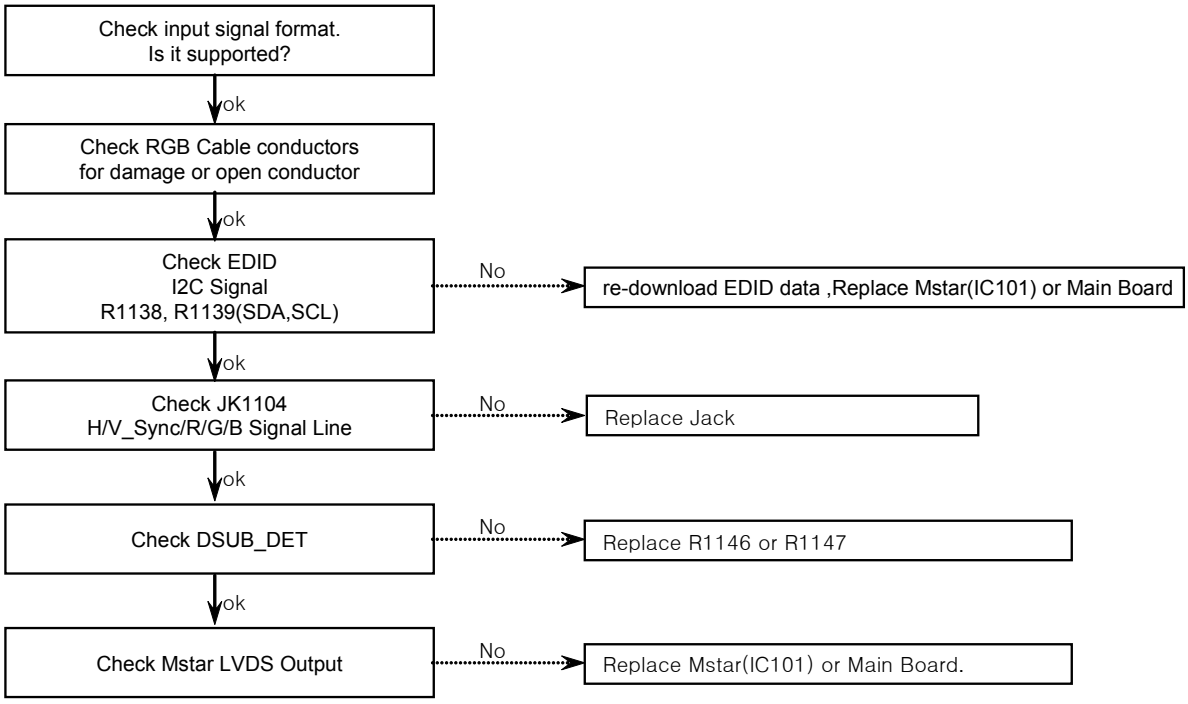
4. AV Video



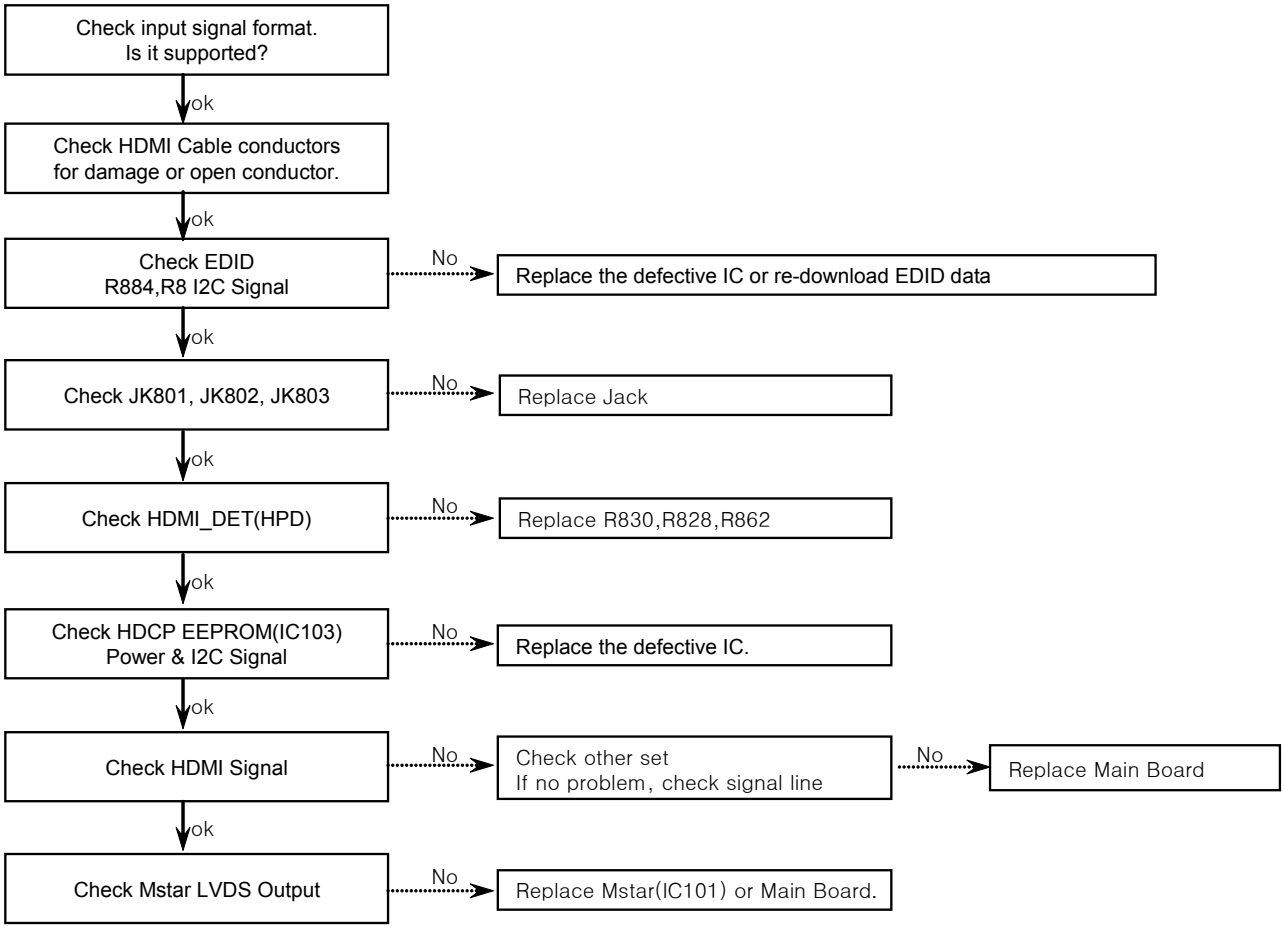
5. Component Video



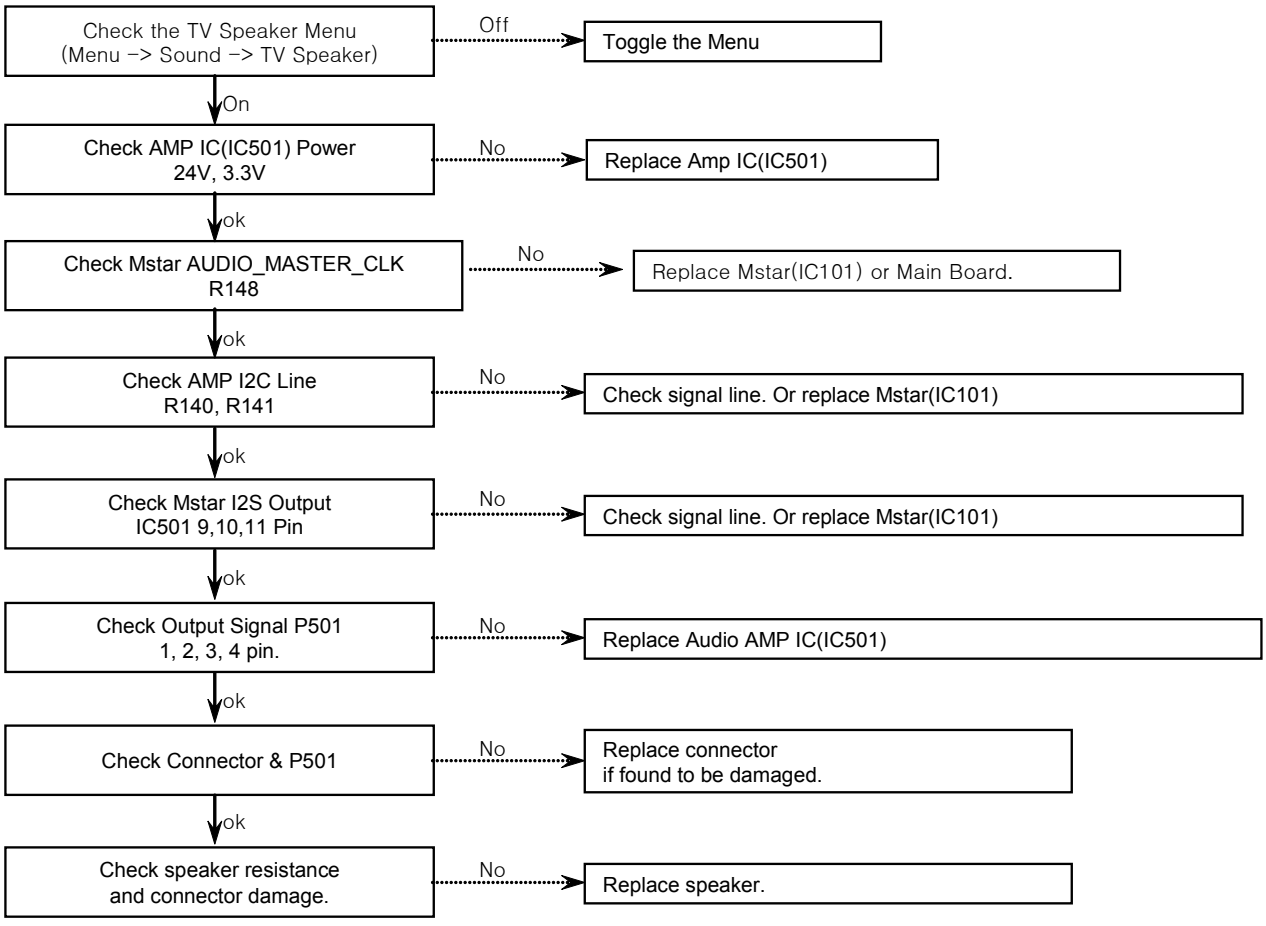
6. RGB Video



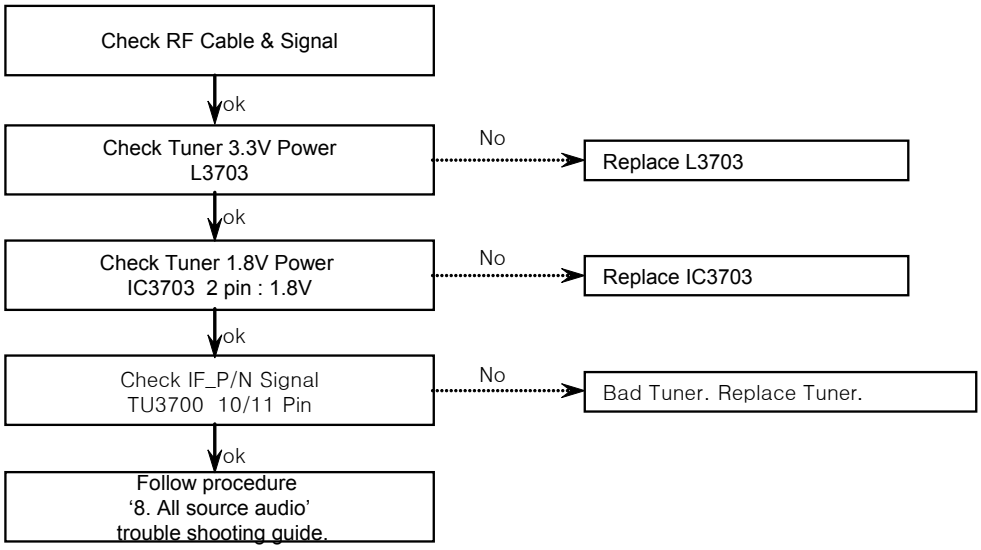
7. HDMI Video



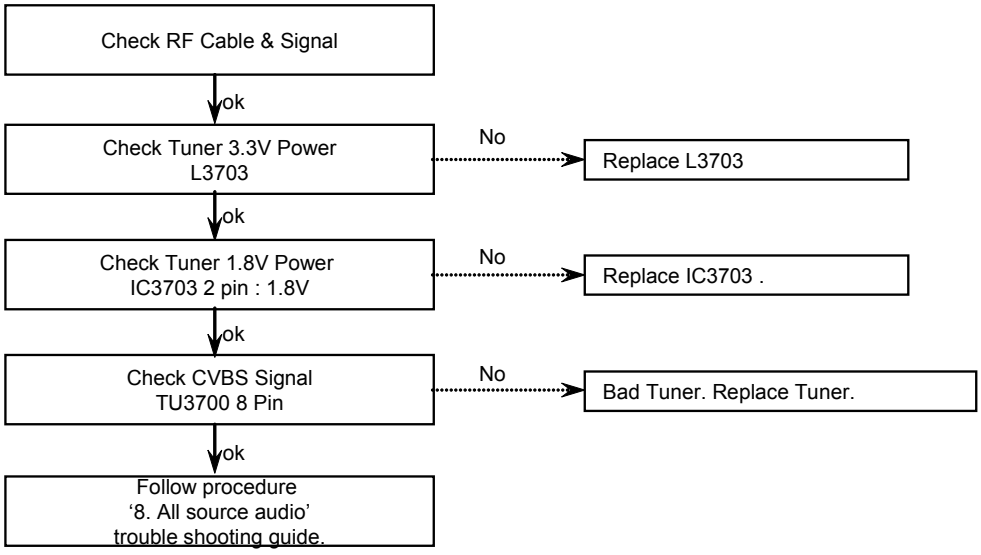
8. All Source Audio



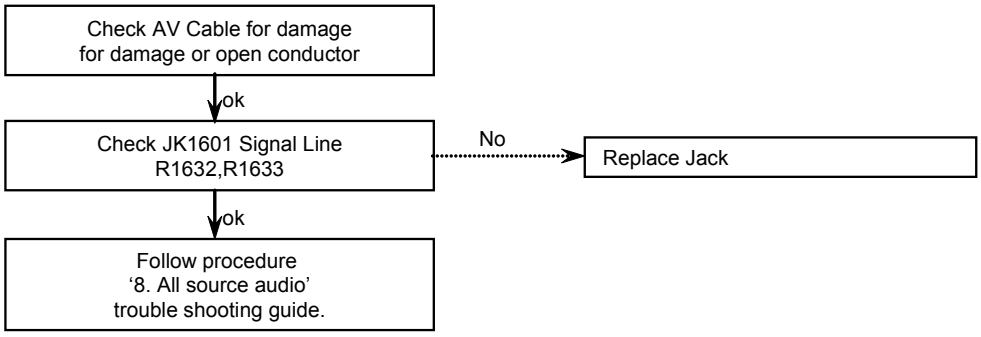
9. Digital TV Audio



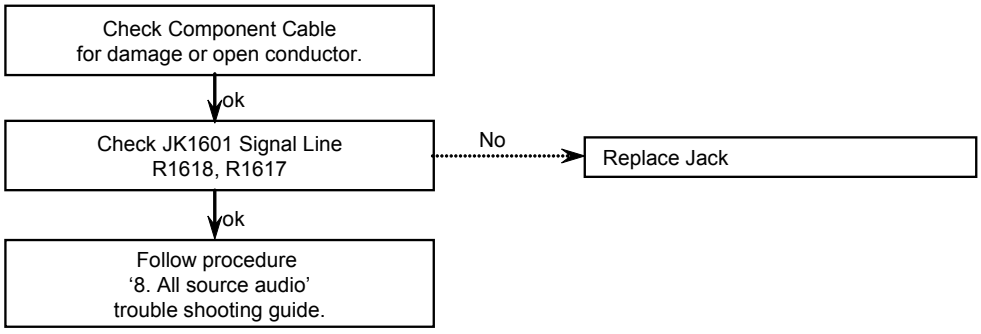
10. Analog TV Audio



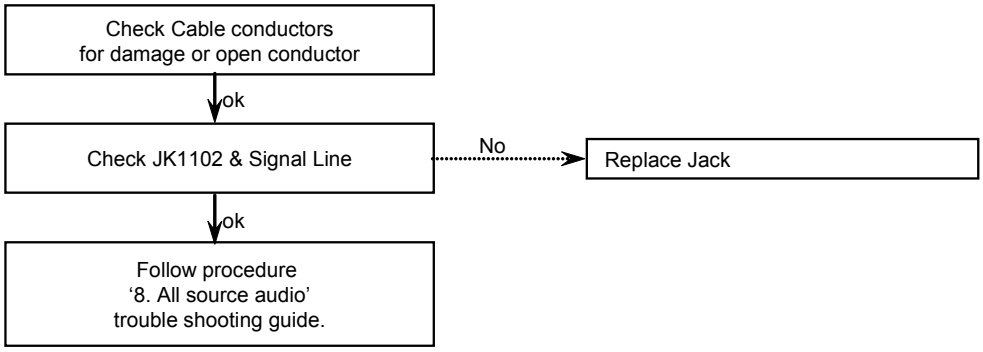
11. AV Audio



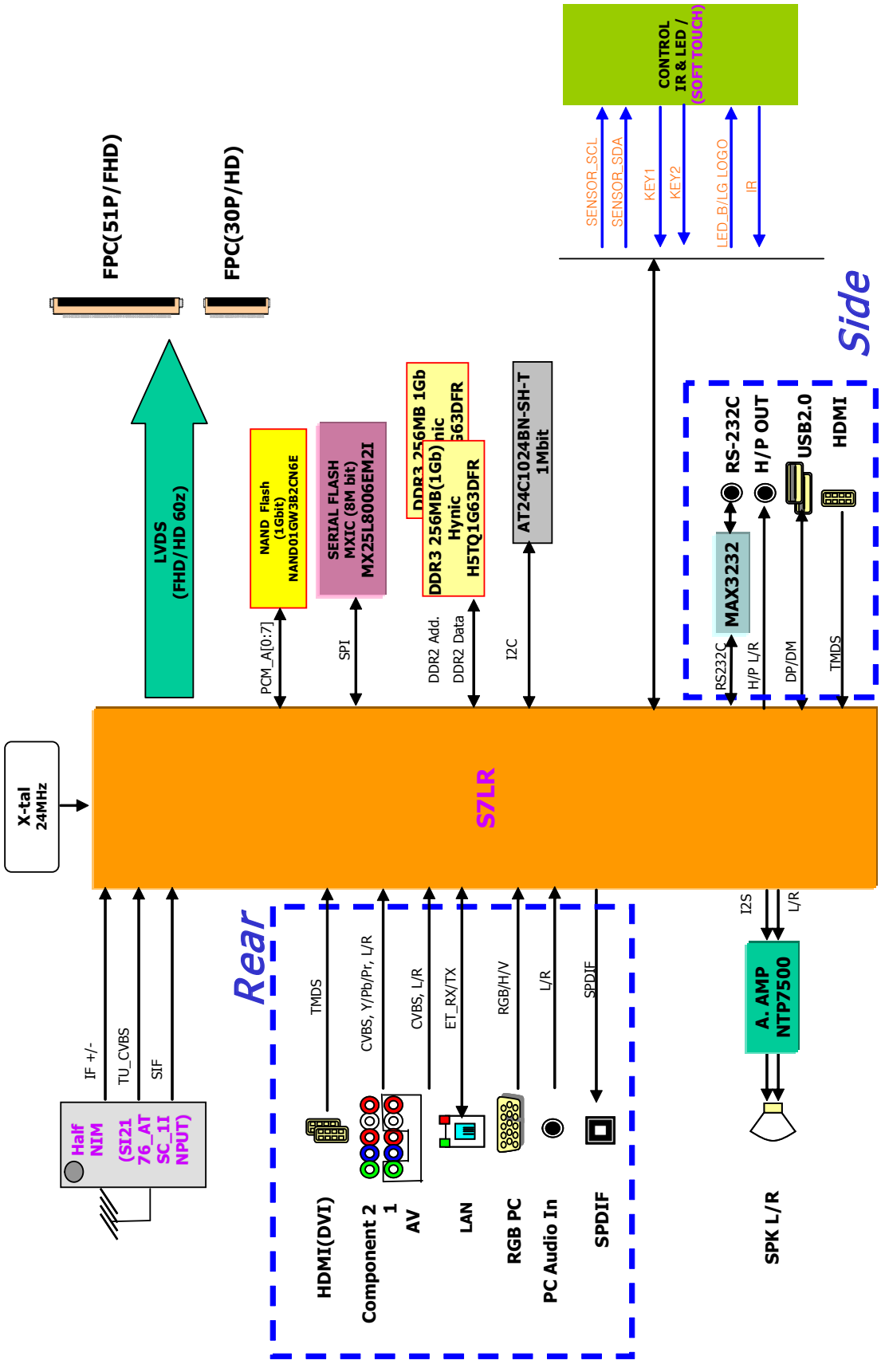
12. Component Audio



13. RGB Audio



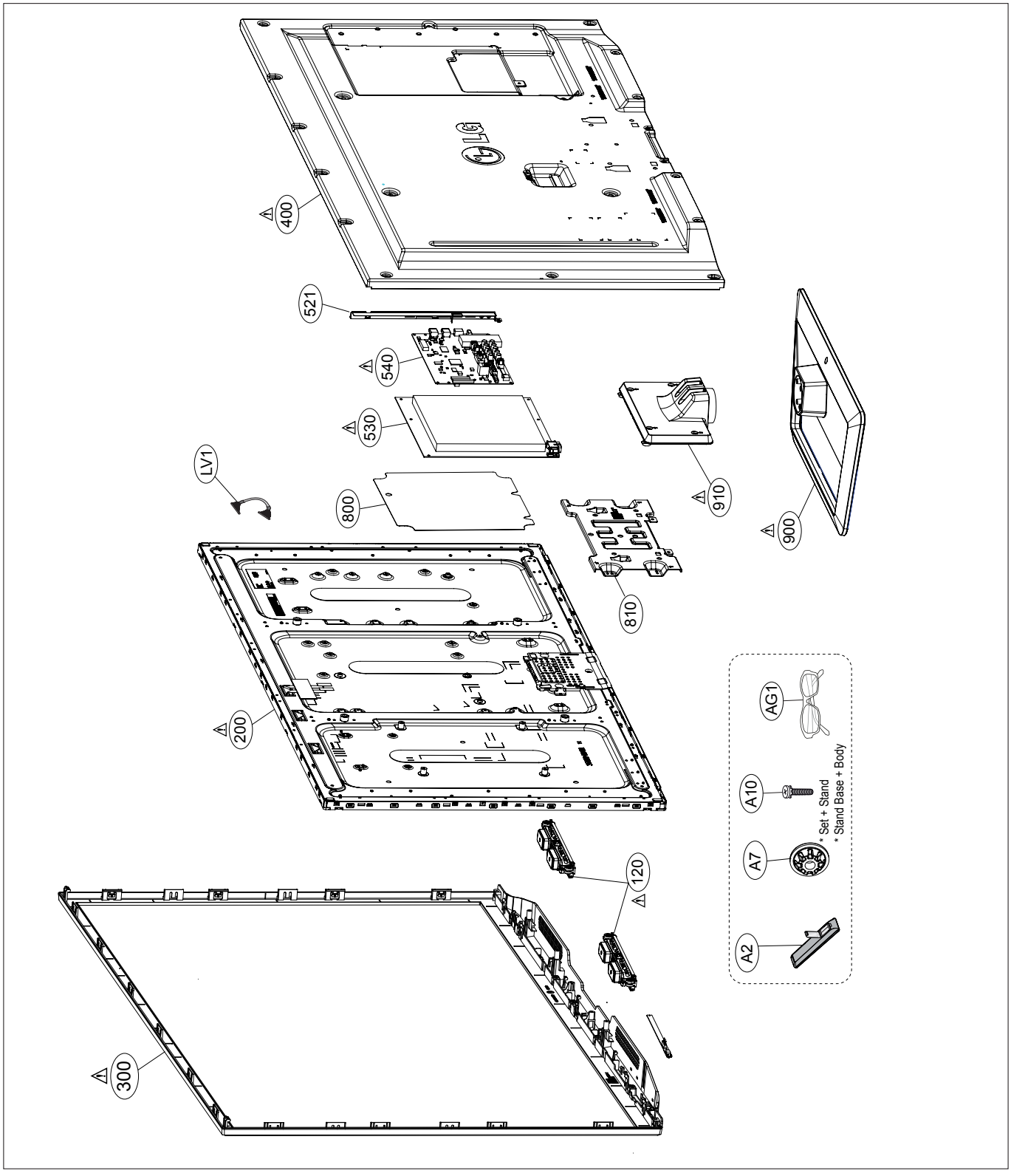
BLOCK DIAGRAM



EXPLODED VIEW

IMPORTANT SAFETY NOTICE

Many electrical and mechanical parts in this chassis have special safety-related characteristics. These parts are identified by ⚠ in the Schematic Diagram and EXPLODED VIEW.
It is essential that these special safety parts should be replaced with the same components as recommended in this manual to prevent X-RADIATION, Shock, Fire, or other Hazards.
Do not modify the original design without permission of manufacturer.



NAND FLASH MEMORY

IC102
NAND016W3B2CN6E
NAND_FLASH_1G_NUMONYX
EAN60762401

+3.3V_Normal

OS R107 1K
OS R108 3.9K
OPT R108 1K
OS C101 0.1uF
OPT R105 1K
OPT R104 10K
OS R106 1K
OS R102 3.3K
Q101 MMBT3904(NXP)

/F_RB
/PF_OE
/PF_CE0
/PF_CE1
PF_ALE
/PF_WE
/PF_WP

OS C102 10uF
OS C103 0.1uF
OS AR101 22
OS AR102 22

PCM_A[0-7]
PCM_A[7]
PCM_A[6]
PCM_A[5]
PCM_A[4]
PCM_A[3]
PCM_A[2]
PCM_A[1]
PCM_A[0]

<CHIP Config(LED_R/BUZZ)>

Boot from SPI CS1N(EXT_FLASH) 1'b0
Boot from SPI_CS0N(INT_FLASH) 1'b1

<CHIP Config>
(I2S_OUT_BCK,I2S_OUT_MCK,PAD_PWM1PAD_PWM0)

B51_no_EJ	: 4'b0000	Boot from 8051 with SPI flash
SB51_WOS	: 4'b0001	Secure B51 without scramble
SB51_WS	: 4'b0010	Secure B51 with scramble
MIPS_SPI_NO_EJ	: 4'b0100	Boot from MIPS with SPI flash
MIPS_SPI_EJ_1	: 4'b0101	Boot from MIPS with SPI flash
MIPS_SPI_EJ_2	: 4'b0110	Boot from MIPS with SPI flash
MIPS_WOS	: 4'b1001	Secure MIPS without scramble
MIPS_WS	: 4'b1010	Scerur MIPS with SCRAMBLE

+3.3V_Normal
R115 1K OPT
R117 1K OPT
R165 1K OS
R123 1K OPT
R152 1K OPT
LED_R/BUZZ
AUD_SCK
AUD_MASTER_CLK_0
PWM1
PWM0
AUD_MASTER_CLK
R148 56
OPT C112 100pF 50V
R116 1K
R119 1K
R121 1K NON_OS
R124 1K
R153 1K

IC101 LGE2111A-T8

S7LR2_DIVX_MS10

PCM_D[0-7]
PCM_A[0-14]
/PCM_REG
/PCM_OE
/PCM_WE
/PCM_IORD
/PCM_IOWR
/PCM_CE
/PCM_IRQA
/PCM_CD
/PCM_WAIT
PCM_RST
+5V_Normal
R132 10K
R133 10K
C108 0.1uF OPT
C109 0.1uF

/CI_CD1
/CI_CD2
OPT R120 22
OPT R122 22
to delete CI or gate for

PCM_5V_CTL
ERROR_OUT
USB1_OCD
USB1_CTL
USB2_OCD
USB2_CTL
PM_TXD
PM_RXD
MODEL_OPT_6
MODEL_OPT_7
I2C_SCL
I2C_SDA
R136 22
R137 22
RGB_DDC_SDA
RGB_DDC_SCL
for SYSTEM EEPROM (IC104)

PWM0
PWM1
PWM2
LED_B/LG_LOGO
LED_R/BUZZ
KEY1
KEY2
R101 22
R163 1K
R164 1K
EU_OPT
SCART1_MUTE
+3.5V_ST
R149 4.7K 1I_SUB
R143 4.7K 1I_SUB
S/T_SDA
S/T_SCL

LOCAL DIMMING
L/DIM_VS
L/DIM_SCLK
L/DIM_MOSI
SENSOR_SCL
SENSOR_SDA

PCMD[0]/GPIO126
PCMDATA[1]/GPIO127
PCMDATA[2]/GPIO128
PCMDATA[3]/GPIO120
PCMDATA[4]/GPIO119
PCMDATA[5]/GPIO118
PCMDATA[6]/GPIO117
PCMDATA[7]/GPIO116
PCMAD[0]/GPIO125
PCMAD[1]/GPIO124
PCMAD[2]/GPIO122
PCMAD[3]/GPIO121
PCMAD[4]/GPI099
PCMAD[5]/GPIO101
PCMAD[6]/GPIO102
PCMAD[7]/GPIO103
PCMAD[8]/GPIO108
PCMAD[9]/GPIO110
PCMAD[10]/GPIO114
PCMAD[11]/GPIO112
PCMAD[12]/GPIO104
PCMAD[13]/GPIO107
PCMAD[14]/GPIO106
PCMREG_N/GPIO123
PCMOE_N/GPIO113
PCMWE_N/GPIO197
PCMIORD_N/GPIO111
PCMIOWR_N/GPIO109
PCMCE_N/GPIO115
PCMIRQA_N/GPIO105
PCMCD_N/GPIO130
PCMWAIT_N/GPIO100
PCM_RESET/GPIO129
PCM2_CE_N/GPIO131
PCM2_IRQA_N/GPIO132
PCM2_CD_N/GPIO135
PCM2_WAIT_N/GPIO133
PCM2_RESET/GPIO134
UART1_TX/GPIO43
UART1_RX/GPIO44
UART2_TX/GPIO65
UART2_RX/GPIO64
UART3_TX/GPIO47
UART3_RX/GPIO48
I2C_SCKM2/DDCR_CK/GPIO72
I2C_SDAM2/DDCR_DA/GPIO71
DDCA_DA/UART0_TX
DDCA_CK/UART0_RX
PWM0/GPIO66
PWM1/GPIO67
PWM2/GPIO68
PWM3/GPIO69
PWM4/GPIO70
PWM_PM/GPIO199
SAR0/GPIO31
SAR1/GPIO32
SAR2/GPIO33
SAR3/GPIO34
SAR4/GPIO35
VSYNC_LIKE/GPIO145
SPI1_CK/GPIO201
SPI1_DI/GPIO202
SPI2_CK/GPIO203
SPI2_DI/GPIO204

NF_CE1Z/GPIO138
NF_WPZ/GPIO198
NF_CEZ/GPIO137
NF_CLE/GPIO136
NF_REZ/GPIO139
NF_WEZ/GPIO140
NF_ALE/GPIO141
NF_RBZ/GPIO142
GPIO_PM[0]/GPIO6
PM_UART_TX/GPIO_PM[1]/GPIO7
GPIO_PM[2]/GPIO8
GPIO_PM[3]/GPIO9
GPIO_PM[4]/GPIO10
PM_UART_RX/GPIO_PM[5]/GPIO11
PM_SPI_SCZ1/GPIO_PM[6]/GPIO12
GPIO_PM[7]/GPIO13
GPIO_PM[8]/GPIO14
GPIO_PM[9]/GPIO15
PM_SPI_SCZ2/GPIO_PM[10]/GPIO16
GPIO_PM[11]/GPIO17
PM_SPI_SCK/GPIO1
PM_SPI_CZ0/GPIO_PM[12]/GPIO0
PM_SPI_SDI/GPIO2
PM_SPI_SDO/GPIO3
TS0CLK/GPIO87
TS0VALID/GPIO85
TS0SYNC/GPIO86
TS0DATA_[0]/GPIO77
TS0DATA_[1]/GPIO78
TS0DATA_[2]/GPIO79
TS0DATA_[3]/GPIO80
TS0DATA_[4]/GPIO81
TS0DATA_[5]/GPIO82
TS0DATA_[6]/GPIO83
TS0DATA_[7]/GPIO84
TS1CLK/GPIO198
TS1VALID/GPIO196
TS1SYNC/GPIO197
TS1DATA_[0]/GPIO88
TS1DATA_[1]/GPIO89
TS1DATA_[2]/GPIO90
TS1DATA_[3]/GPIO91
TS1DATA_[4]/GPIO92
TS1DATA_[5]/GPIO93
TS1DATA_[6]/GPIO94
TS1DATA_[7]/GPIO95

OS AR103 22
AR104 22 OS
/PF_WP
/PF_CE0
/PF_CE1
/PF_OE
/PF_WE
/PF_ALE
/F_RB

H5 POWER_DET
K6 PM_TXD
K5 INV_CTL
J6 RL_ON
K4 POWER_ON/OFF_1
L6 PM_RXD
C2
L5 /FLASH_WP
M6 SIDE_HP_MUTE
M5 PANEL_CTL
C1 PM_MODEL_OPT_0
M4 AMP_MUTE

A2 R147 33
D3 R154 22 R146 33
B2 OPT
B1 R151 33
SPI_SCK
/SPI_CS
SPI_SDI
SPI_SDO
for SERIAL FLASH

CI_TS_CLK
CI_TS_VAL
CI_TS_SYNC
CI_TS_DATA[0-7]
from CI SLOT

Y14 CI_TS_CLK
AA10 CI_TS_VAL
Y12 CI_TS_SYNC
Y13 CI_TS_DATA[0]
Y11 CI_TS_DATA[1]
AA12 CI_TS_DATA[2]
AB12 CI_TS_DATA[3]
AA14 CI_TS_DATA[4]
AB14 CI_TS_DATA[5]
AA13 CI_TS_DATA[6]
AB11 CI_TS_DATA[7]

FE_TS_CLK
FE_TS_VAL_ERR
FE_TS_SYNC
FE_TS_DATA[0-7]
Internal demod out

AC15 FE_TS_CLK
AD15 FE_TS_VAL_ERR
AC16 FE_TS_SYNC
AD16 FE_TS_DATA[0]
AE15 FE_TS_DATA[1]
AE14 FE_TS_DATA[2]
AC13 FE_TS_DATA[3]
AC14 FE_TS_DATA[4]
AD12 FE_TS_DATA[5]
AD13 FE_TS_DATA[6]
AD14 FE_TS_DATA[7]

NAND_FLASH_1G_HYNIX

EAN35669102
IC102-*1
H27U1G8F2BTR-BC

NAND_FLASH_1G_SS

EAN61857001
IC102-*2
K9F1G08U0D-SCB0

NAND_FLASH_1G_TOSHIBA

EAN61508001
IC102-*3
TC58NVG0S3ETA00BBBH

S7LR2_DIVX_CN IC101-*4 LGE2111A-VD

S7LR2_DIVX_AT_ASE IC101-*1 LGE2111A-TE

S7LR2_DIVX_AT IC101-*3 LGE2111A-W1

S7LR2_DIVX_AT_SPIL IC101-*2 LGE2111A-TE_SPIL

DIMMING

A_DIM
R156 10K
R157 100
A_DIM C111 2.2uF
PWM0
PWM2

I2C

+3.3V_Normal
R140 1K
R141 1K
R160 1K
R161 1K
R144 2.2K
R145 2.2K
AMP_SDA
AMP_SCL
I2C_SDA
I2C_SCL
SENSOR_SDA
SENSOR_SCL

HDCP EEPROM

Addr:10101--
HDCP_EEPROM IC103 CAT24WC08W-T
R113 4.7K
C107 0.1uF
R127 4.7K HDCP_EEPROM
R128 22 HDCP_EEPROM
R129 22 HDCP_EEPROM
I2C_SCL
I2C_SDA

EEPROM

IC104 AT24C256C-SSHL-T NVRAM_ATMEL
A0'h
C105 0.1uF
C104 8pF OPT
C106 8pF OPT
R111 22 I2C_SCL
R112 22 I2C_SDA
EAN61133501

NON_OS_512k_ST IC104-*3 M24512-RMN6TP

EAN43349003

NON_OS_512k_ATMEL IC104-*4 AT24C512C-SSHD-T

EAN43349004

NVRAM_ST IC104-*1 M24256-BRMN6TP

EAN61548301

NVRAM_RENESAS IC104-*2 R1EX24256BSAS0A

EAN62389501

PM MODEL OPTION

+3.5V_ST
R174 10K TOUCH_KEY
R177 10K 1I_SUB
R178 100 OPT
R179 100 OPT
R175 10K TACT_KEY
R176 10K 1I_SUB
PM_MODEL_OPT_0
PM_MODEL_OPT_1

IC101 LGE2111A-T8

S7LR2_DIVX_MS10

+3.3V_Normal
R4.7K 4.7K URSA5_RESET
URSA5_RESET
R171 100 URSA5_RESET
R172 0
R173 0 OPT
MODEL_OPT_1
AMP_SCL
AMP_SDA
MODEL_OPT_2
DEMOD_RESET

AMP_RESET
5V_DET_HDMI_1
5V_DET_HDMI_2
5V_DET_HDMI_4
AV_CVBS_DET
DSUB_DET
SC1/COMP1_DET
HP_DET
DLP
TUNER_RESET
MODEL_OPT_0
I2C_SCKM0/GPIO53
I2C_SDAM0/GPIO54
GPIO73
GPIO74

Supplied on only SMALL PCB

RXA0+ RXA0- RXA1+ RXA1- RXA2+ RXA2- RXA3+ RXA3- RXA4+ RXA4-
RXB0+ RXB0- RXB1+ RXB1- RXB2+ RXB2- RXB3+ RXB3- RXB4+ RXB4-
RXACK+ RXACK- RXBCK+ RXBCK-
MODEL_OPT_3 MODEL_OPT_4 MODEL_OPT_5 S2_RESET

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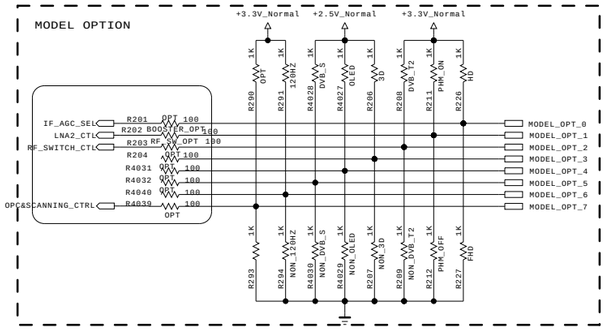
SECRET
LGElectronics

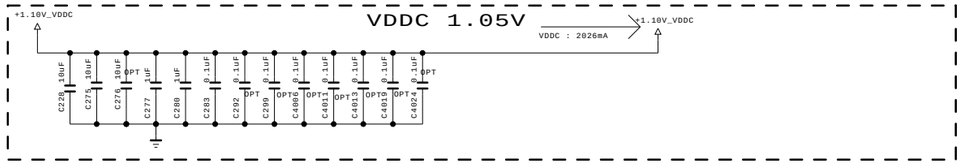
LG ELECTRONICS

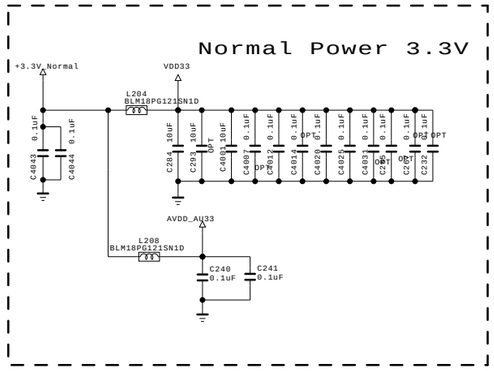
MODEL	GP4L_S7LR2	DATE	2011.11.16
BLOCK	FLASH/EEPROM/GPIO	SHEET	1 /

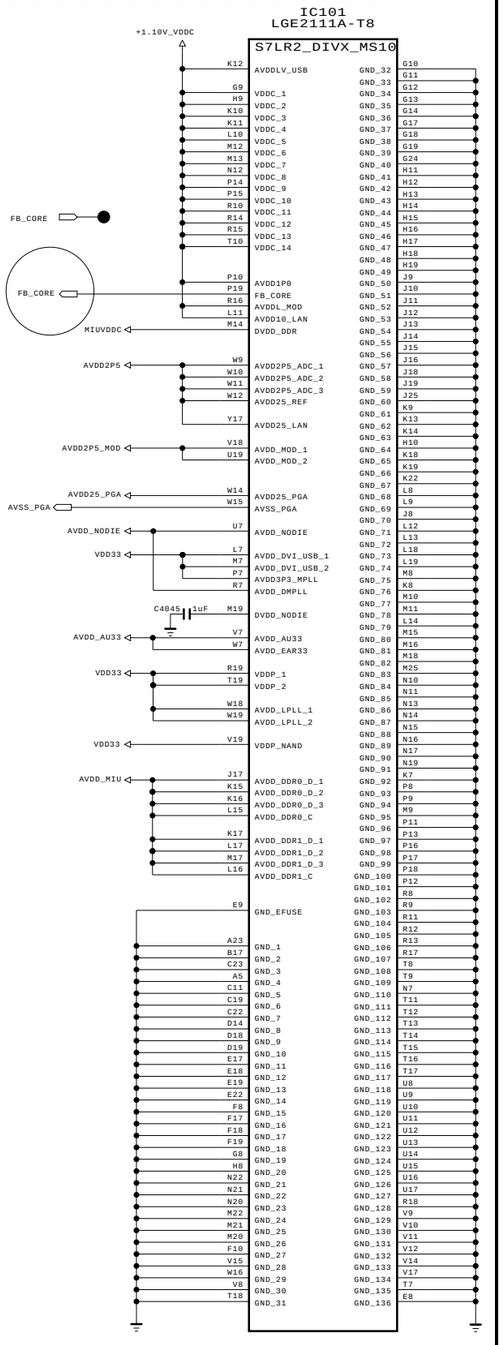
MODEL OPTION

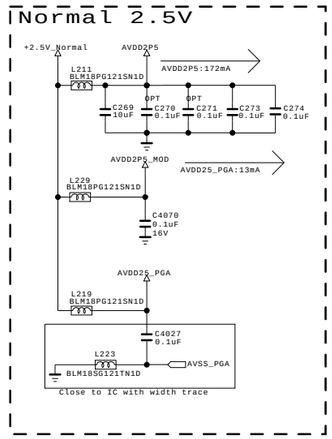
PIN NAME	PIN NO.	LOW	HIGH
MODEL_OPT_0	AB3	FHD	HD
MODEL_OPT_1	F4	PHM_OFF	PHM_ON
MODEL_OPT_2	AB2	NON_DVB_T2	DVB_T2
MODEL_OPT_3	T25	NON_3D	3D
MODEL_OPT_4	U23	NON_OLED	OLED
MODEL_OPT_5	T24	NON_DVB_S	DVB_S
MODEL_OPT_6	B8	NON_120HZ	120HZ
MODEL_OPT_7	A8	READY	READY

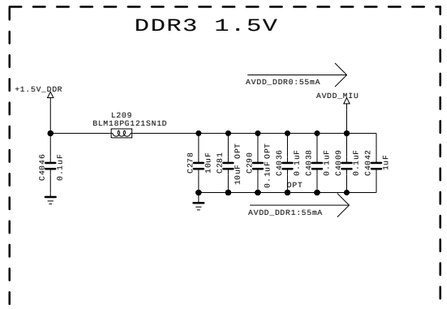


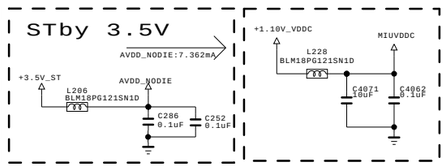


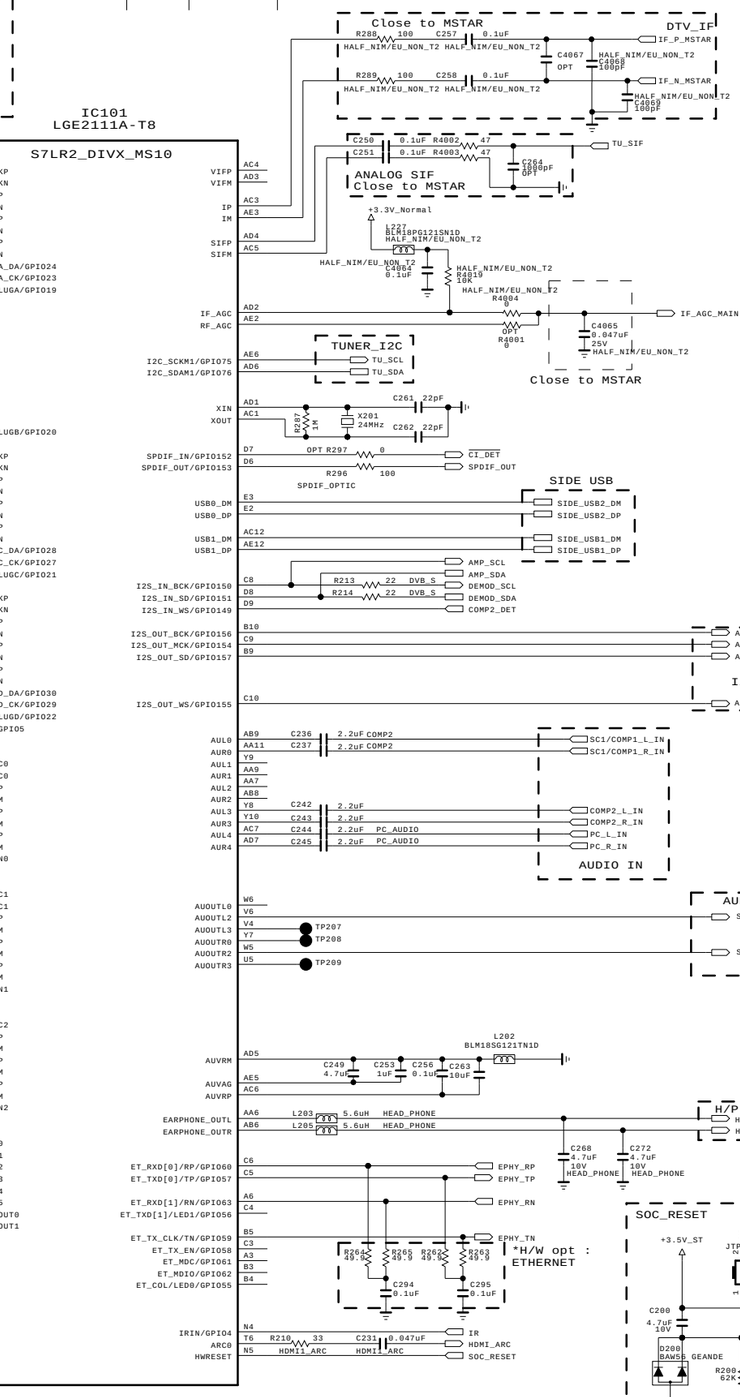


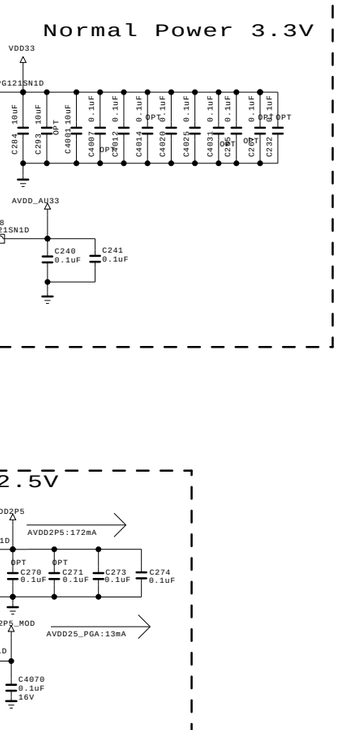












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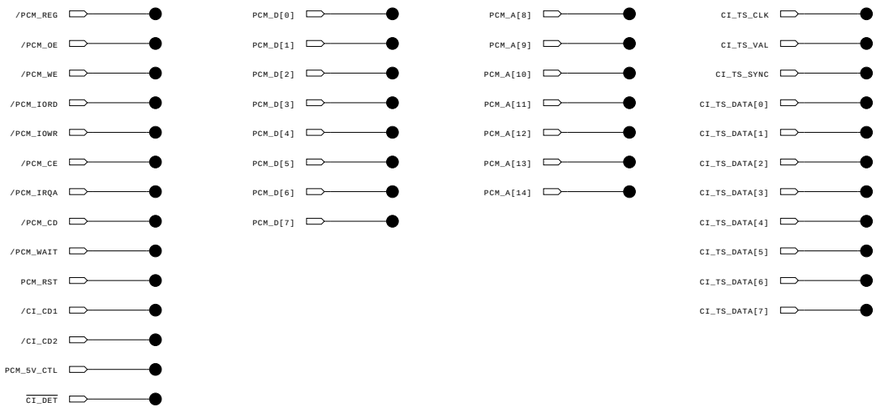
SECRET
LGElectronics

LG ELECTRONICS

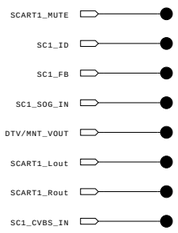
MODEL	GP4L_S7LR2	DATE	2011.07.12
BLOCK	POWER, IN/OUT, H/W OPT	SHEET	2 /

TP for NON-EU models(except EU and China)

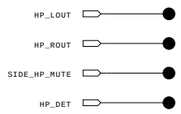
TP for CI slot



TP for SCART



TP for Headphone



TP for S2

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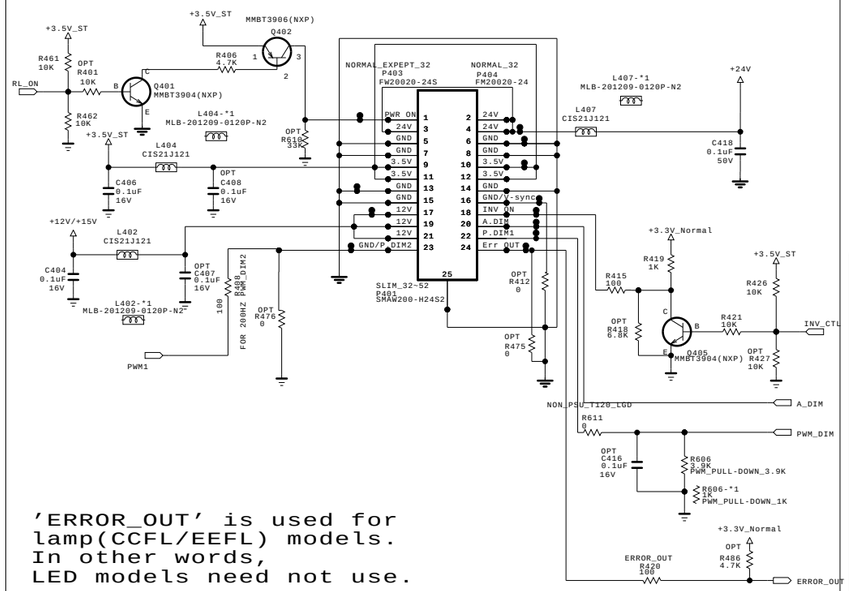
SECRET
LGElectronics

LG ELECTRONICS

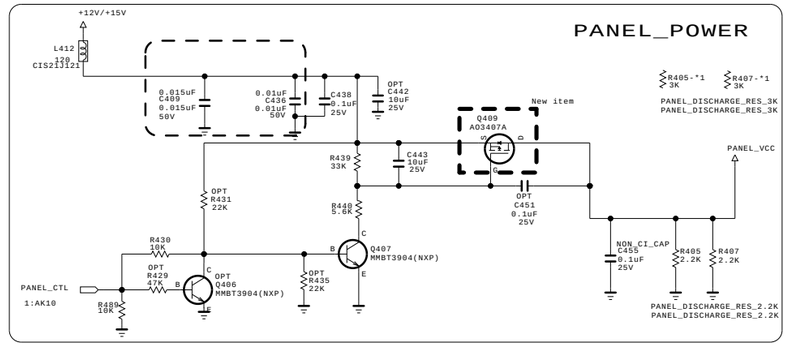
MODEL	GP4_S7LR2	DATE	2011.07.07
BLOCK	TP_NON_EN	SHEET	3 /

FROM LIPS & POWER B/D

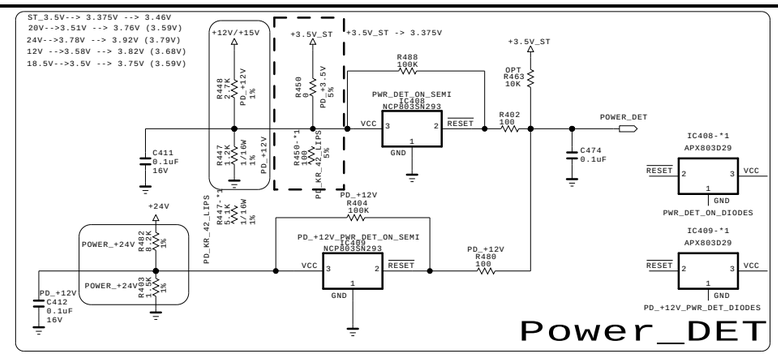


'ERROR_OUT' is used for
lamp(CCFL/EEFL) models.
In other words,
LED models need not use.

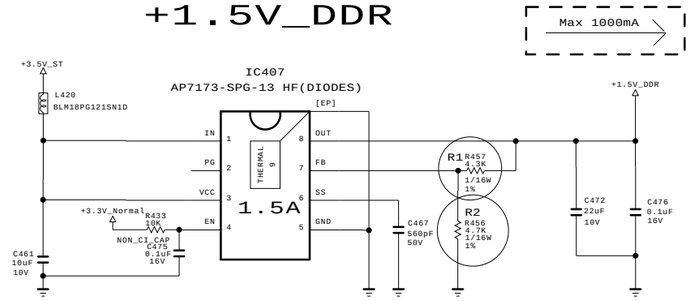
PANEL_POWER



Power_DET

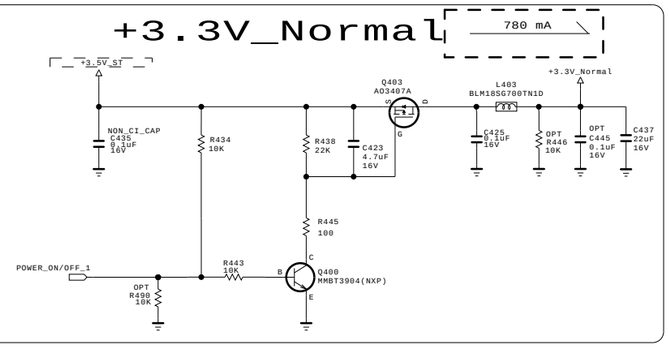


+1.5V_DDR

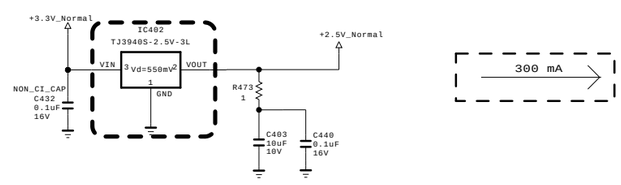


Vout=0.8*(1+R1/R2)=1.5319

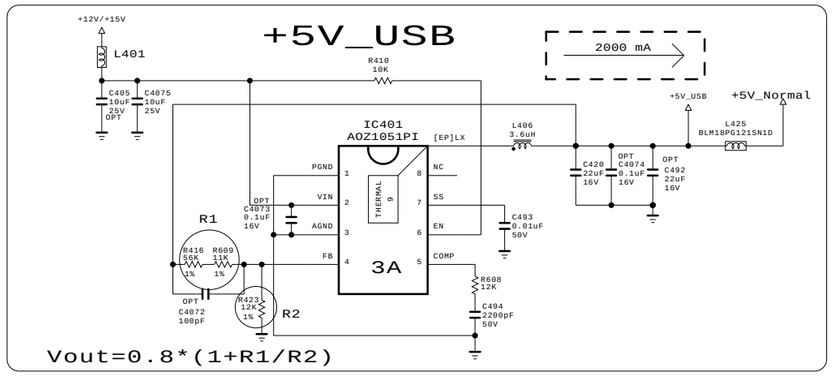
+3.3V_Normal



+2.5V/+1.8V

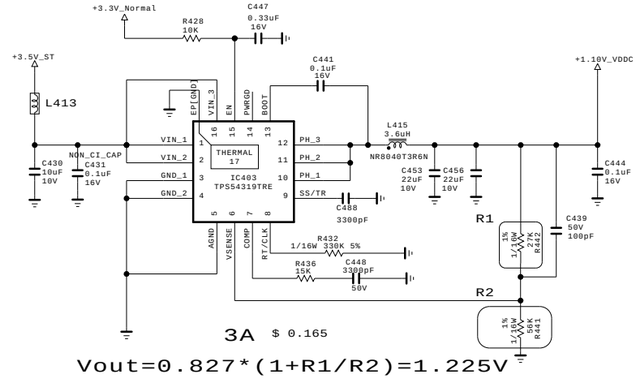


+5V_USB



Vout=0.8*(1+R1/R2)

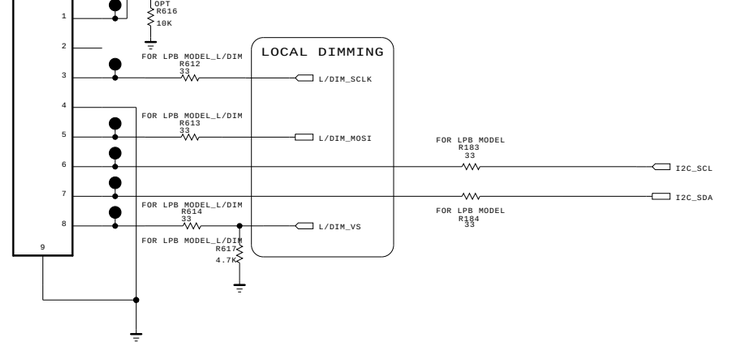
S7LR core 1.2V volt

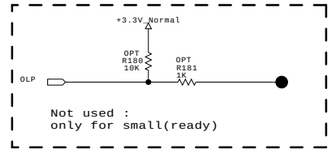


Vout=0.827*(1+R1/R2)=1.225V

FOR LPB Download

[To LED DRIVER]





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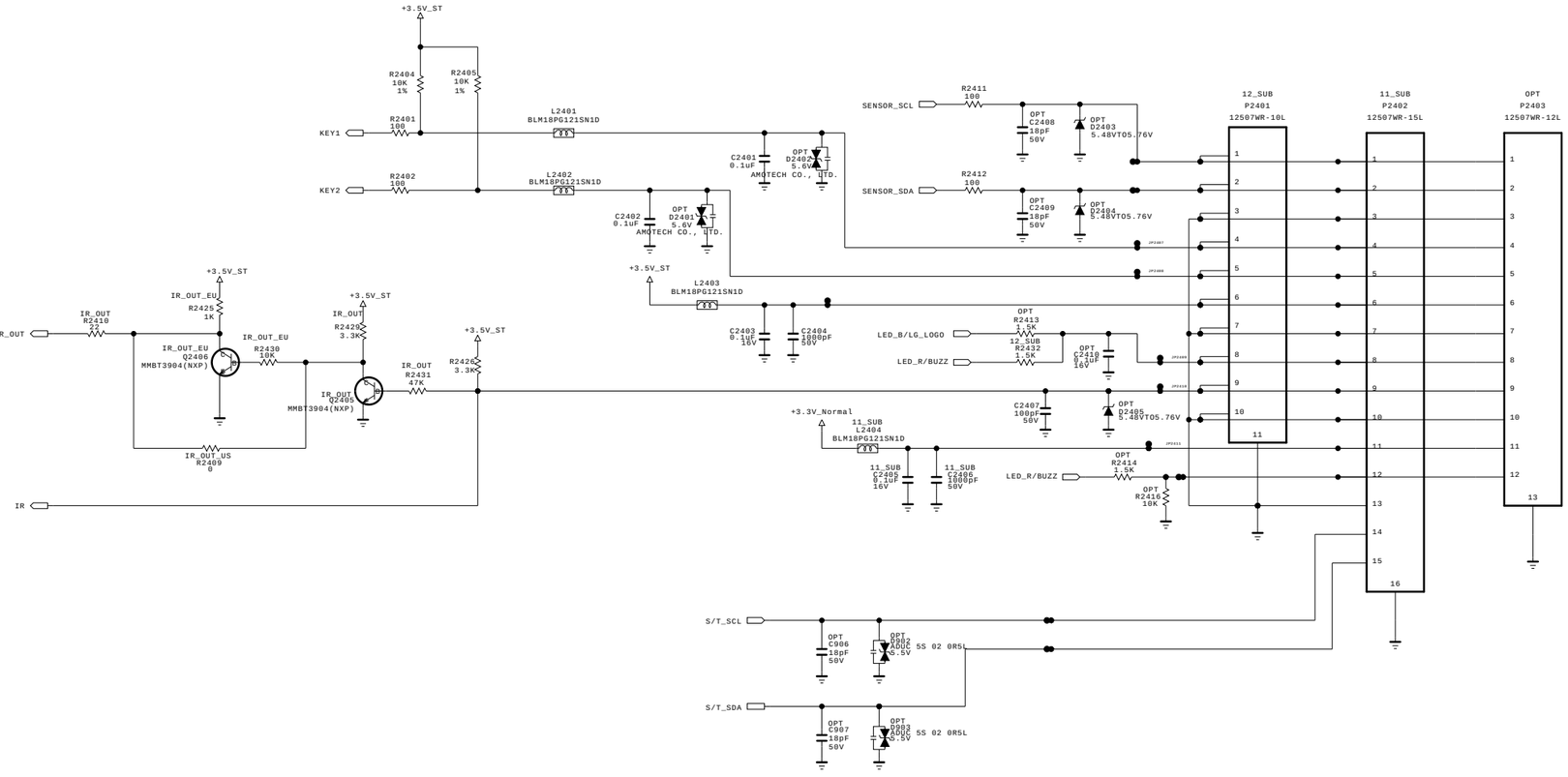
SECRET
LGElectronics

LG ELECTRONICS

MODEL	GP4L_S7LR2	DATE	2011/11.14
BLOCK	POWER_LARGE	SHEET	4

IR/LED and control for normal models.



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SECRET

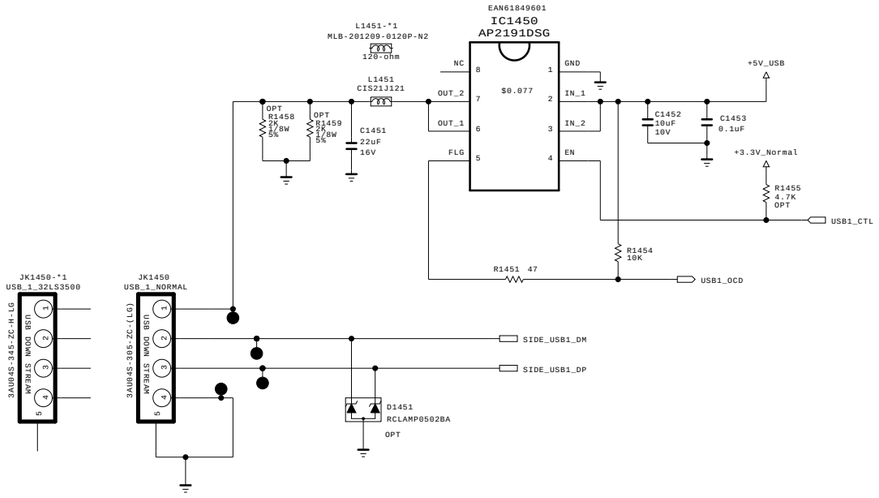
LGElectronics

LG ELECTRONICS

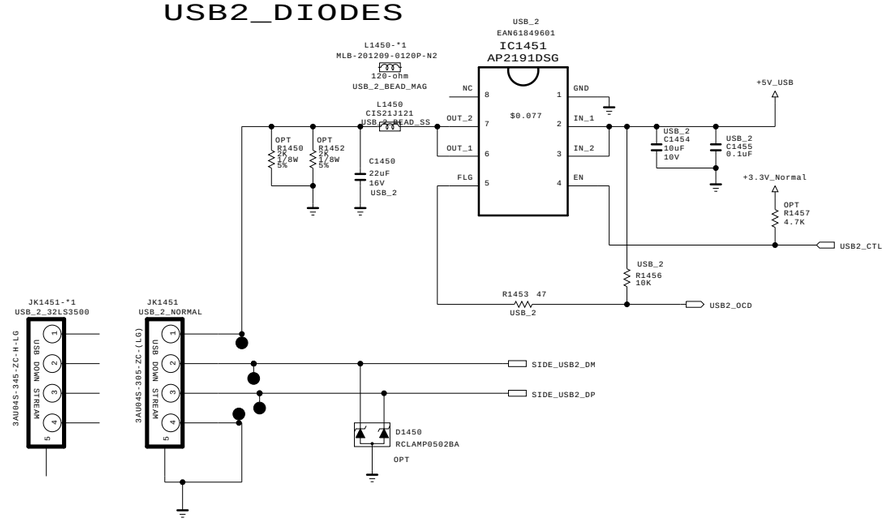
MODEL	GP4L_S7LR2	DATE	2011/11/16
BLOCK	IR/CONTROL	SHEET	6

USB (SIDE)

USB1_DIODES



USB2_DIODES



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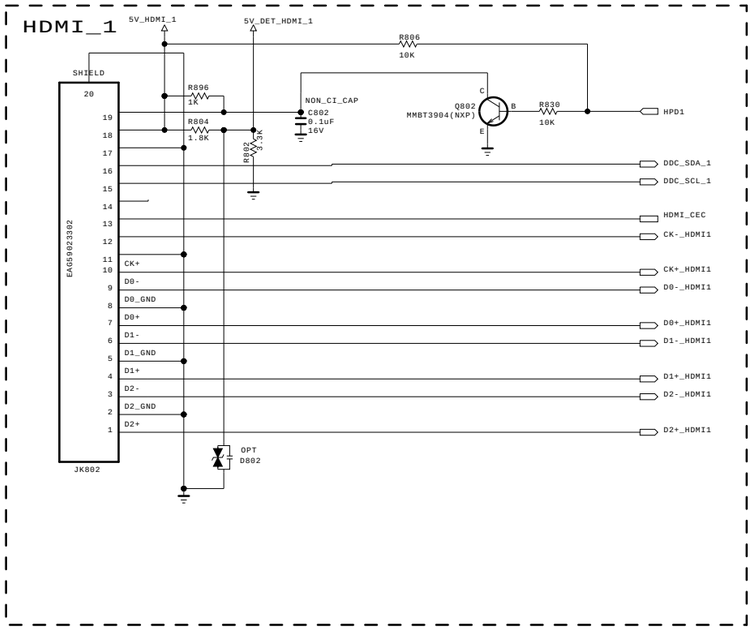
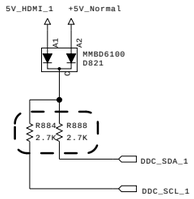
SECRET
LGElectronics

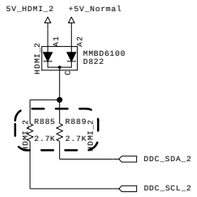
LG ELECTRONICS

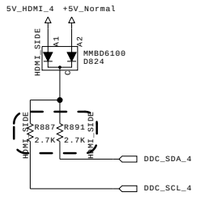
MODEL	GP4_S7LR2	DATE	10/08/13
BLOCK	USB_OCP_DIODE	SHEET	7 /

HDMI

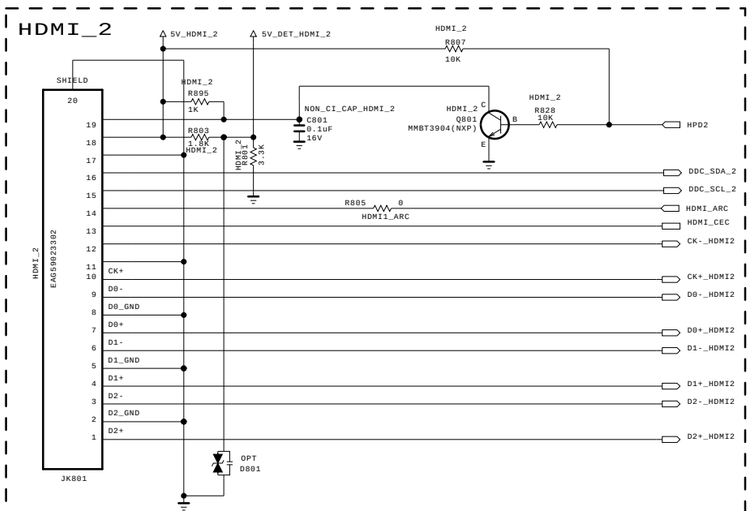


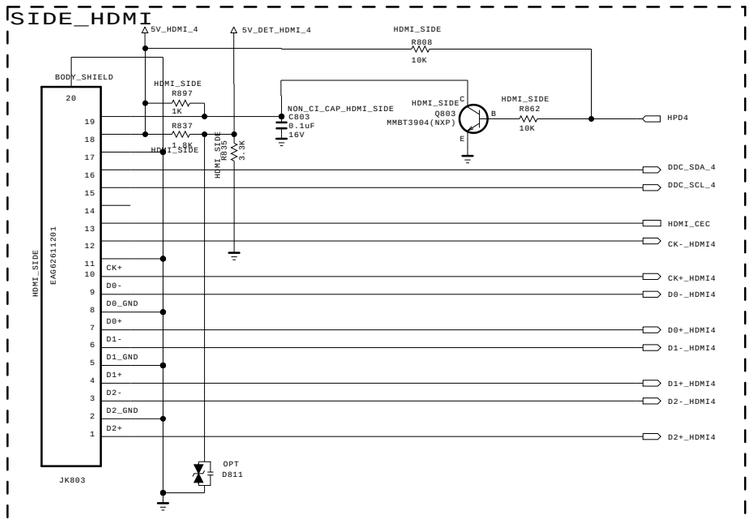


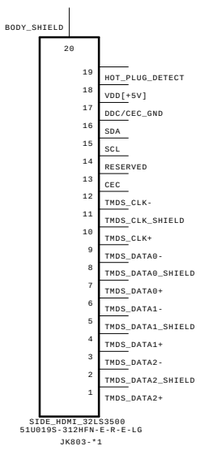




For CEC







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SECRET
LGElectronics

LG ELECTRONICS

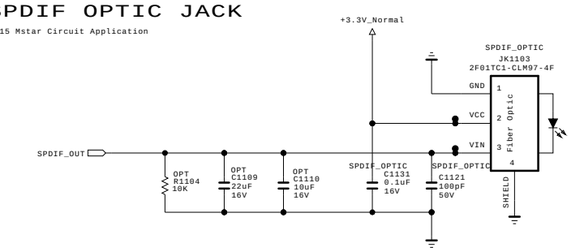
MODEL	GP4L_S7LR2	DATE	2011.10.04
BLOCK	HDMI	SHEET	8

LGE Internal Use Only

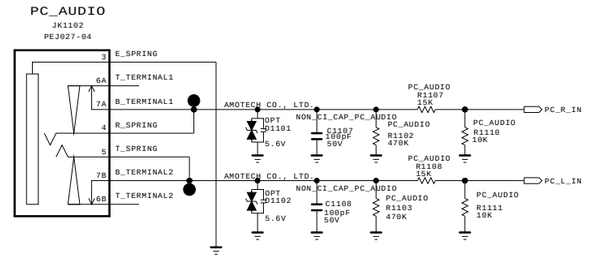
RGB-PC / SPDIF

SPDIF OPTIC JACK

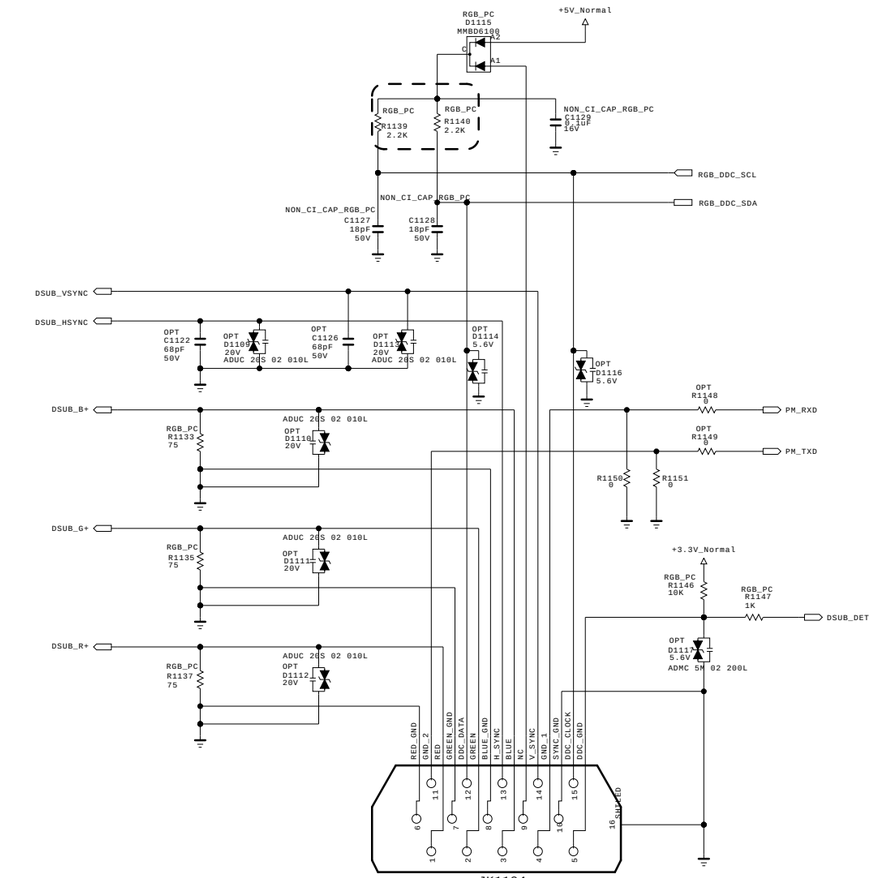
5.15 Mstar Circuit Application



PC AUDIO



RGB PC



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SECRET

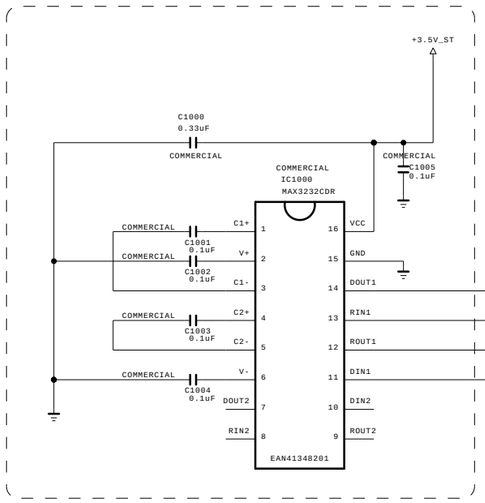
LGElectronics

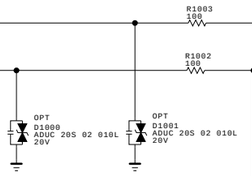
LG ELECTRONICS

MODEL	GP4L_S7LR2	DATE	2011/09/27
BLOCK	RGB-PC/SPDIF	SHEET	9

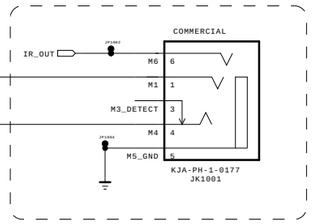
RS-232C

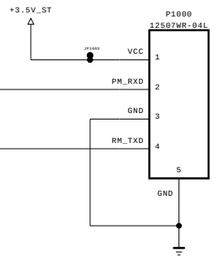
COMMERCIAL MODEL OPTION





COMMERCIAL MODEL OPTION





For Comsumer model,
use 4PIN Wafer.

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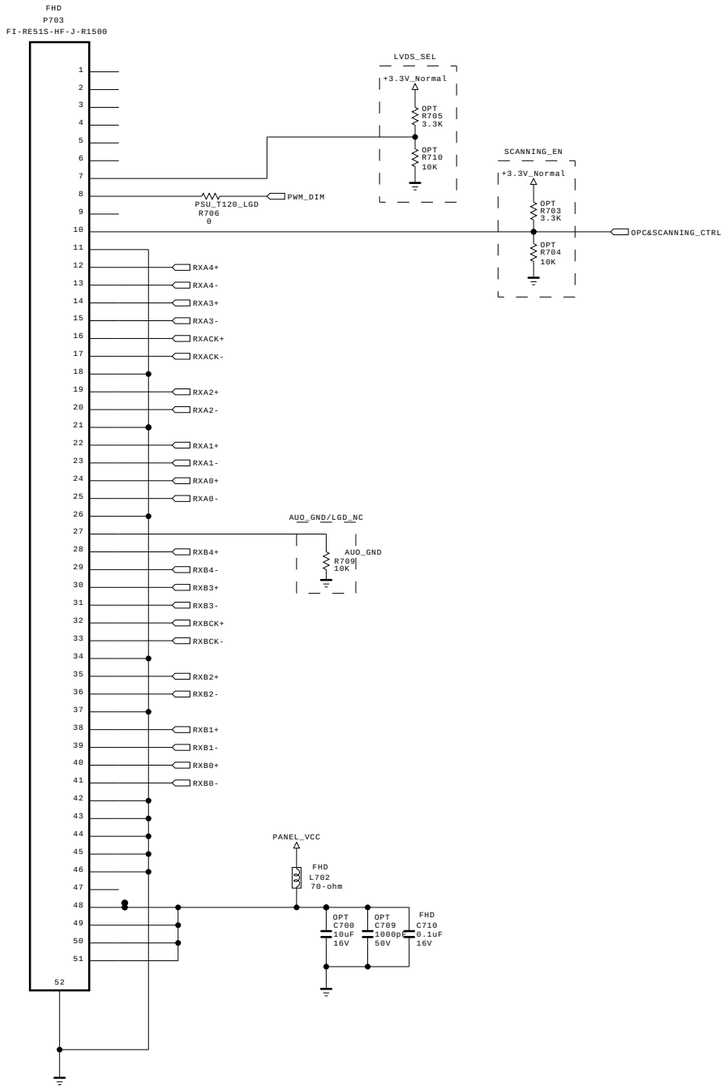
LG ELECTRONICS

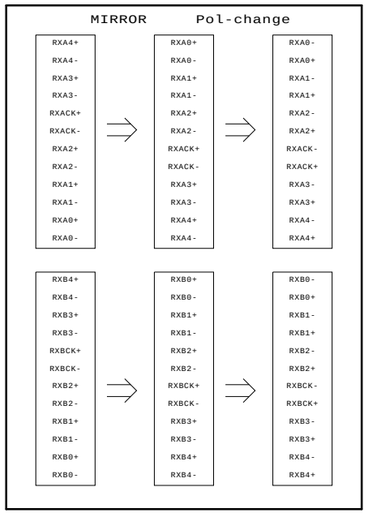
MODEL	GP4L_S7LR2	DATE	2011/08/13
BLOCK	RS232C_PHONE	SHEET	10 /

LVDS for large inch

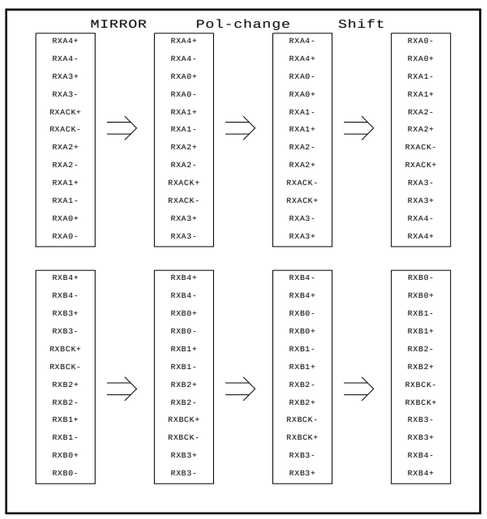
[51Pin LVDS Connector] (For FHD 60Hz)



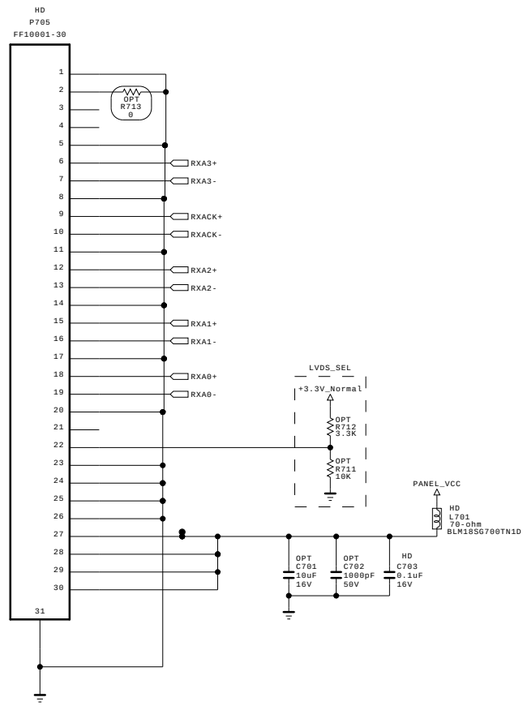
FOR FHD REVERSE(10bit) Change in S7LR



FOR FHD REVERSE(8bit) Change in S7LR



[30Pin LVDS Connector] (For HD 60Hz_Normal)



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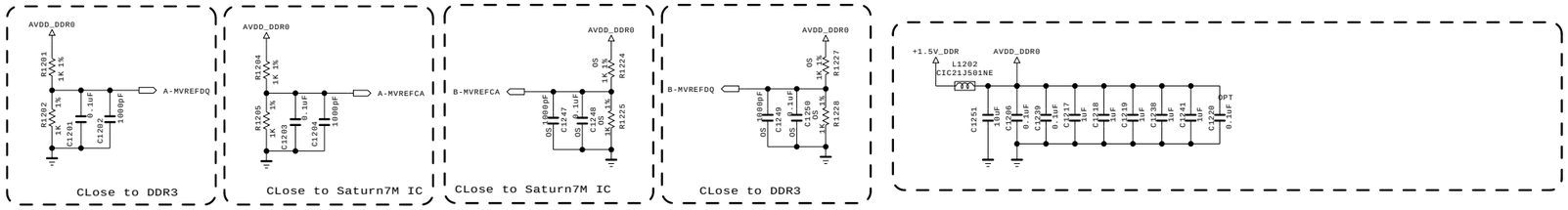
SECRET
LGElectronics

LG ELECTRONICS

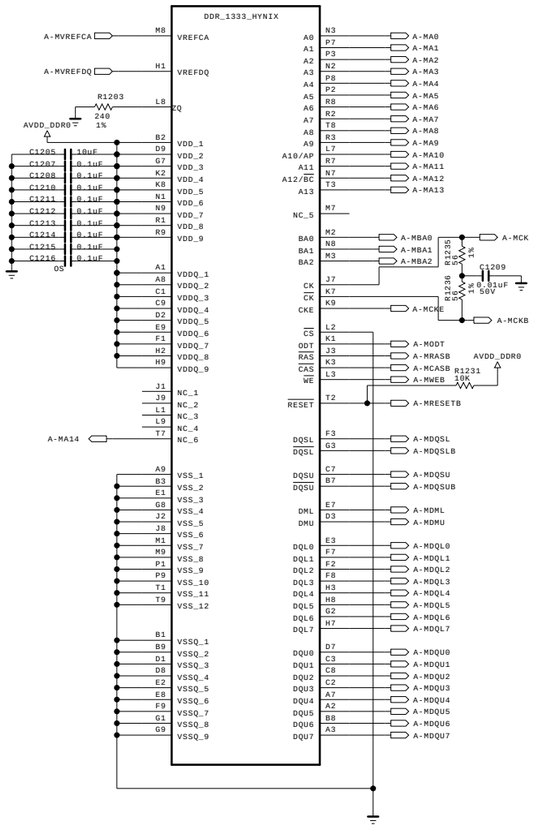
MODEL	GP4L_S7LR2	DATE	2011/11/14
BLOCK	LVDS_LARGE	SHEET	11



EAN61828901

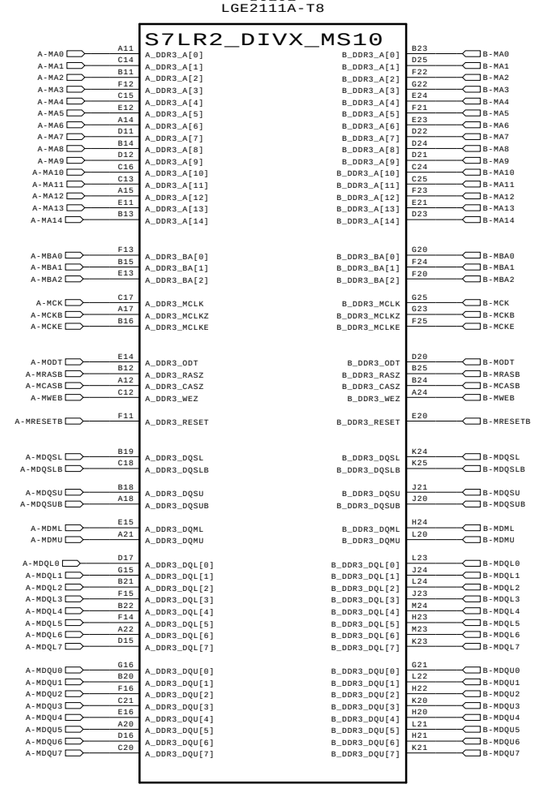
IC1201 H5TQ1G63DFR-H9C

DDR_1333_HYNIX



IC101 LGE2111A-T8

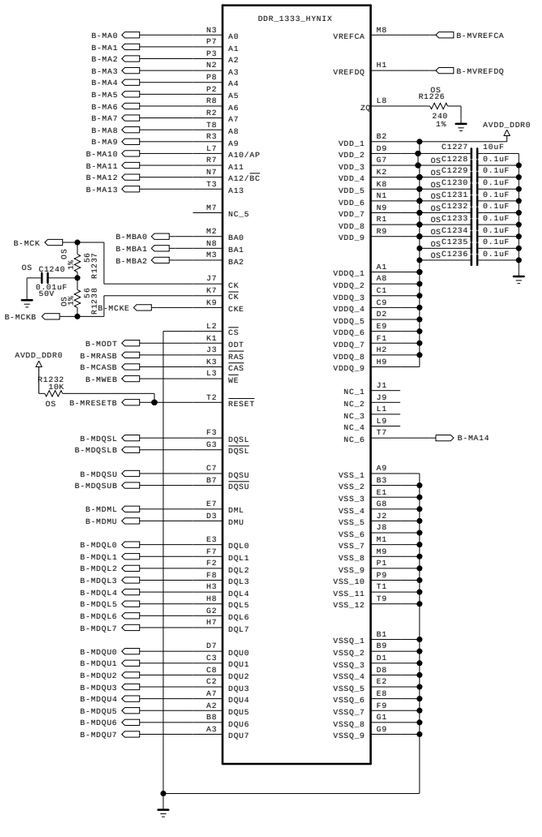
S7LR2_DIVX_MS10



EAN61828901

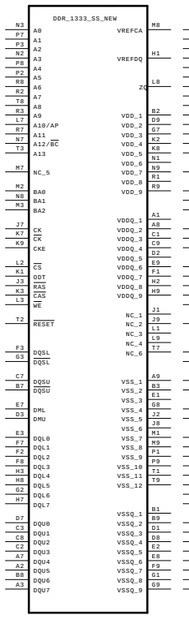
IC1202 H5TQ1G63DFR-H9C

DDR_1333_HYNIX



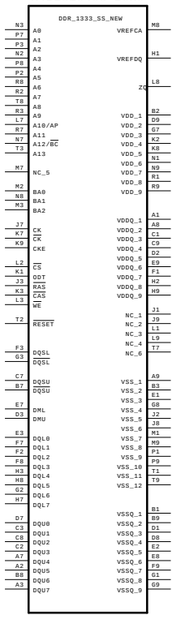
IC1201-*1 K4B1G1646G-BCH9

DDR_1333_SS_NEW



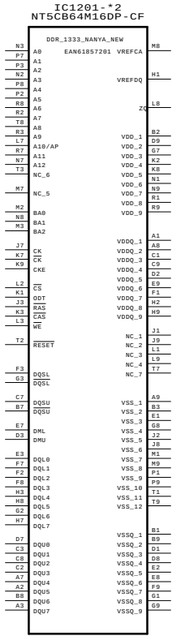
IC1202-*1 K4B1G1646G-BCH9

DDR_1333_SS_NEW



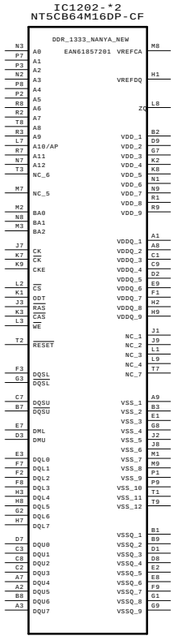
IC1201-*2 NT5CB64M16DP-CF

DDR_1333_NANYA_NEW



IC1202-*2 NT5CB64M16DP-CF

DDR_1333_NANYA_NEW



DDR_1600_SS IC1201-*K K4B1G1646G-BCK0

DDR_1600_SS IC1202-*K K4B1G1646G-BCK0

DDR_1600_HYNIX IC1201-*G H5TQ1G63DFR-PBC

DDR_1600_HYNIX IC1202-*G H5TQ1G63DFR-PBC

DDR_DVB_T2_2G IC1201-*E K4B2G1646C

DDR_DVB_T2_2G IC1202-*E K4B2G1646C

DDR_1600_MICRON IC1201-*F MT41J64M16JT-125:G

DDR_1600_MICRON IC1202-*F MT41J64M16JT-125:G

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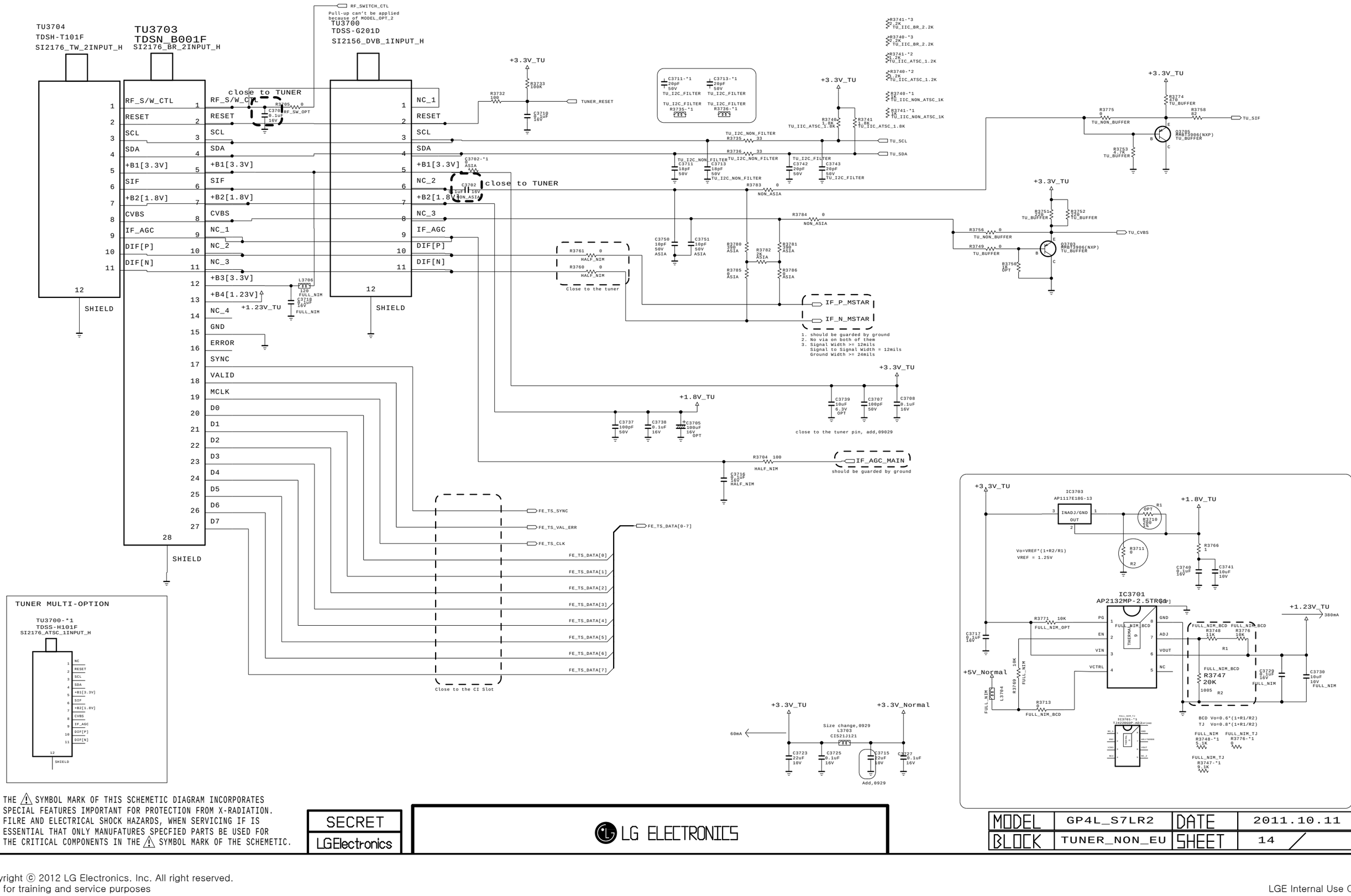
SECRET

LGElectronics

LG ELECTRONICS

MODEL	GP4L_S7LR2	DATE	2011/06/03
BLOCK	DDR_256	SHEET	12 /

GLOBAL tuner block except EU and China



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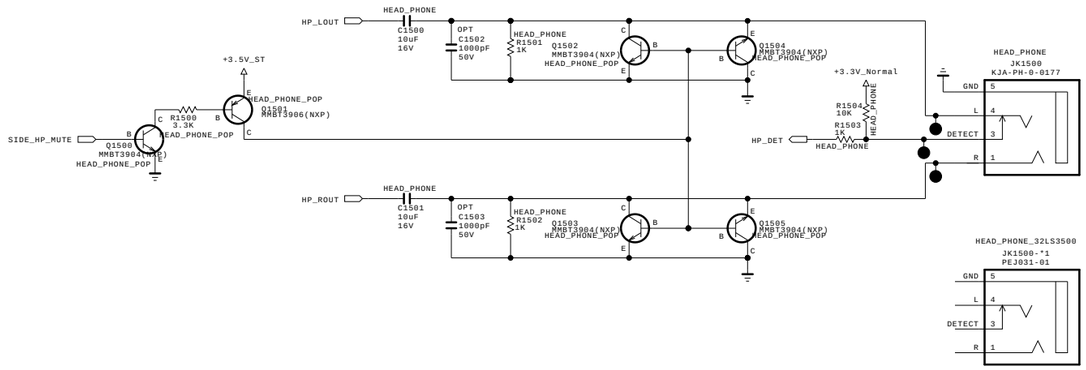
SECRET
LGElectronics

LG ELECTRONICS

MODEL	GP4L_S7LR2	DATE	2011.10.11
BLOCK	TUNER_NON_EU	SHEET	14

Headphone *Option : HEAD_PHONE



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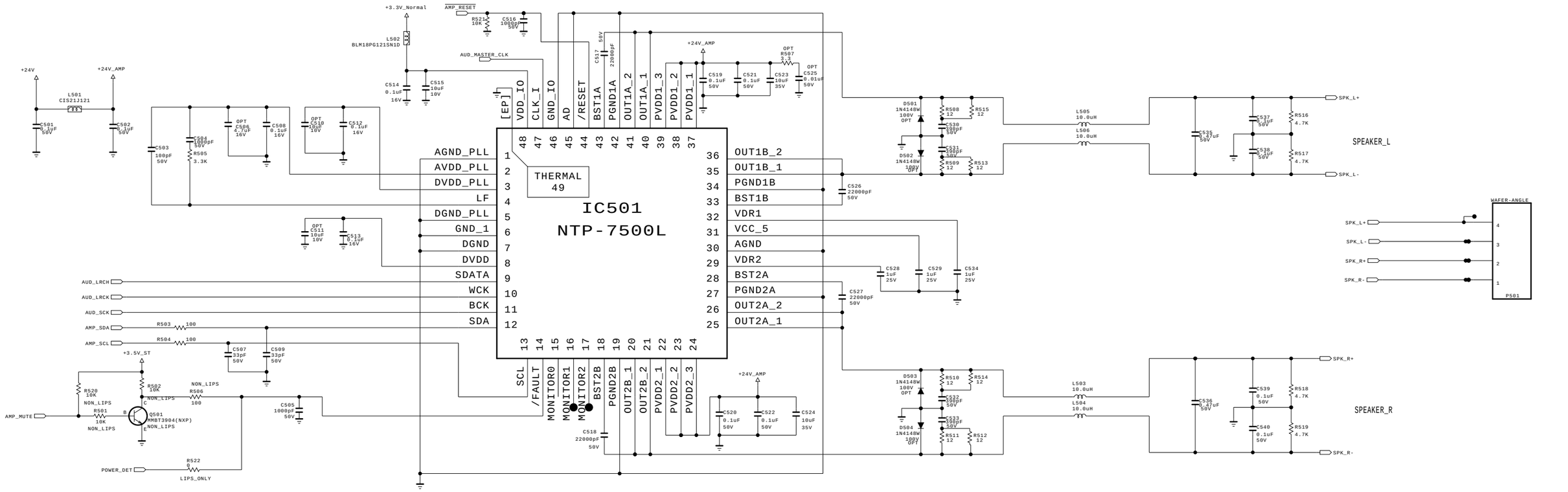
SECRET
LGElectronics

LG ELECTRONICS

MODEL	GP4L_S7LR2	DATE	2011/10/04
BLOCK	HEADPHONE	SHEET	15

Audio amp(NTP-7500)



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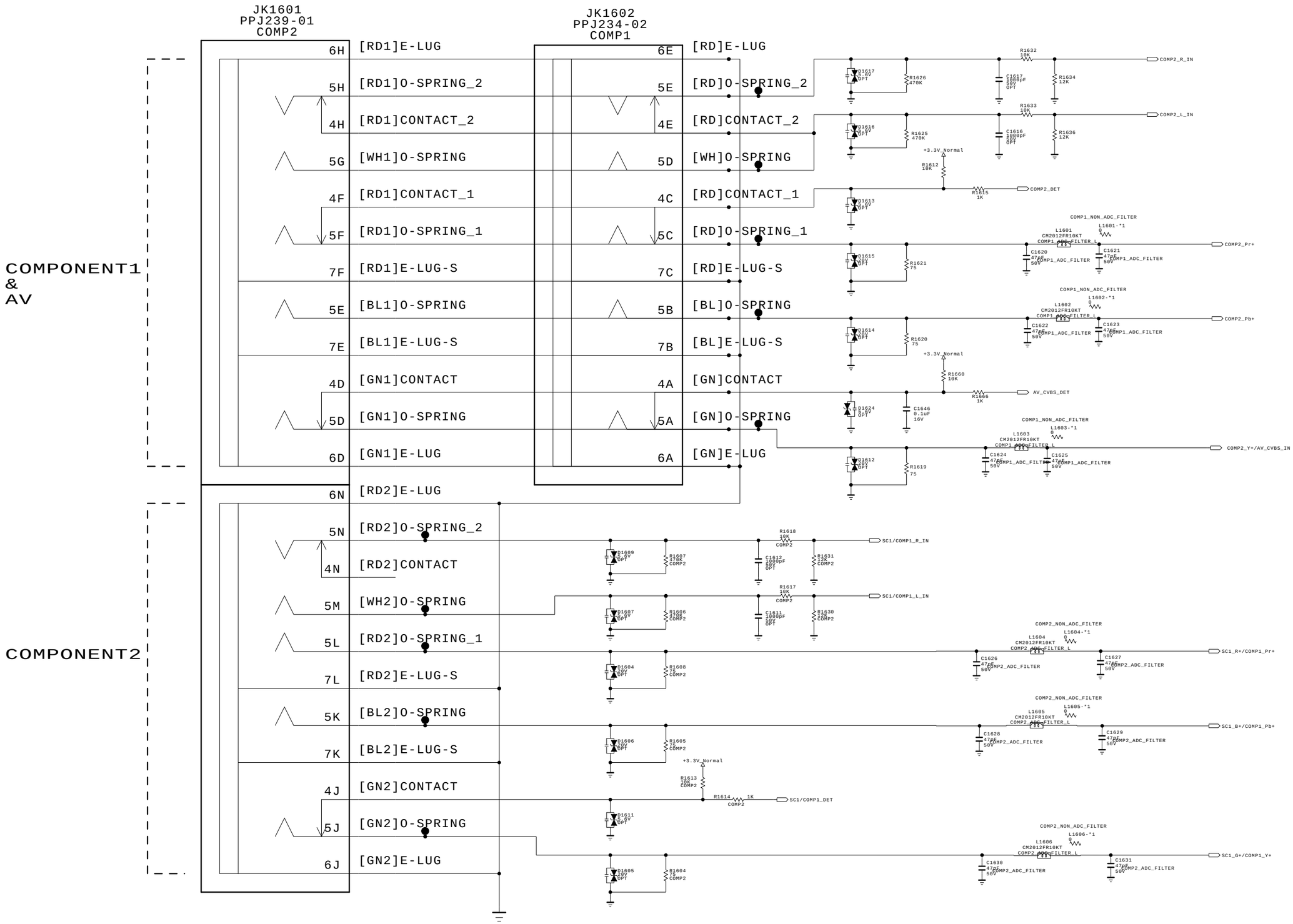
SECRET
LGElectronics

LG ELECTRONICS

MODEL	GP4L_S7LR2	DATE	2011.10.04
BLOCK	NTP-7500	SHEET	16 /

COMPONENT1 & AV(COMMON), COMPONENT2



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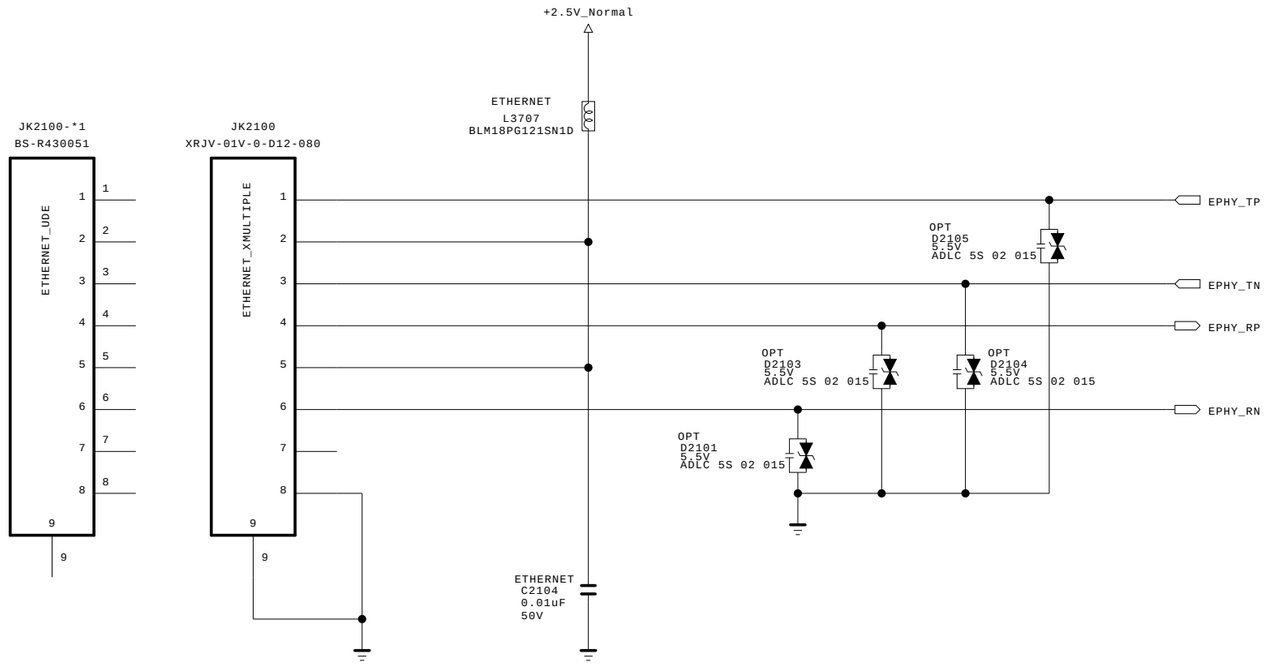
SECRET
LGElectronics

LG ELECTRONICS

MODEL	GP4L_S7LR2	DATE	2011.11.02
BLOCK	REAR_NON_EU_L	SHEET	17

ETHERNET

* H/W option : ETHERNET



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SECRET

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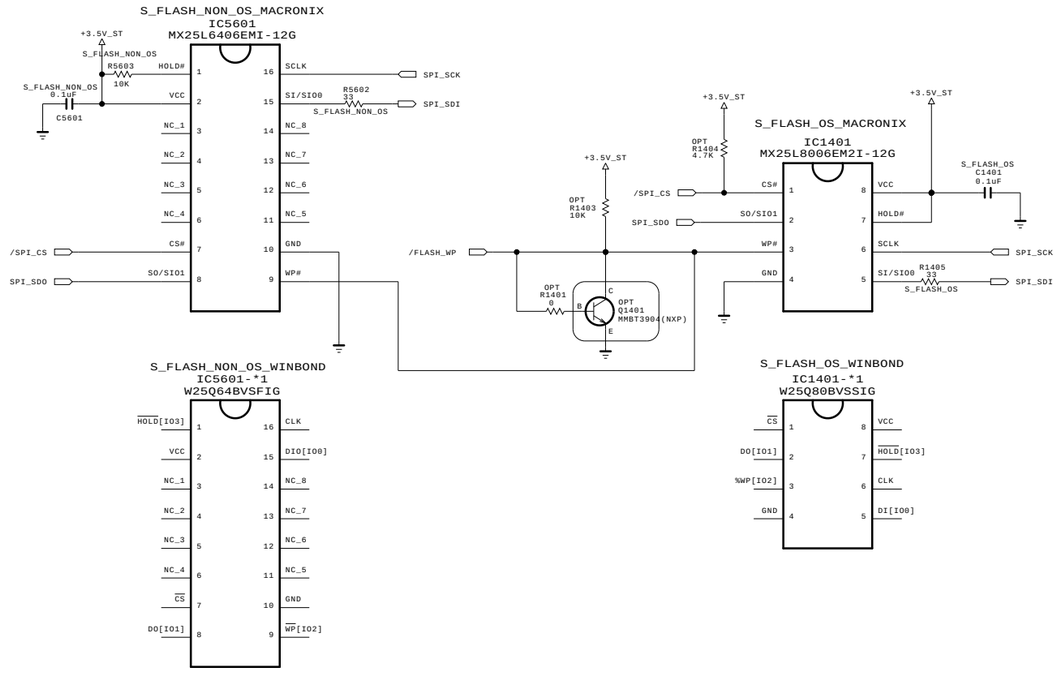
LG ELECTRONICS

MODEL	GP4L_S7LR2	DATE	2011/06/14
BLOCK	ETHERNET	SHEET	21 /

Serial Flash for SPI boot_NON_OS and OS



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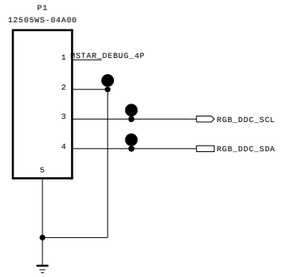
SECRET
LGElectronics

LG ELECTRONICS

MODEL	GP4L_S7LR	DATE	2011.08.29
BLOCK	Serial FLASH	SHEET	56

MSTART DEBUG_4PIN



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FILRE AND ELECTRICAL SHOCK HAZARDS, WHEN SERVICING IF IS
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SECRET
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LG ELECTRONICS

MODEL	GP4L_S7LR2	DATE	2011/09/05
BLOCK	MSTAR DEBUG_4PIN	SHEET	58


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